**5.0 RESULTS OF COMMUNITY ANALYSIS IN UPPER WEST REGION**

**5.1 Biophysical Characteristics and Agro-environment**

The Upper West Region is located in the extreme northwest of Ghana. The region borders Cote d’Ivoire and Burkina Faso. The landscape is gently undulating plains, 200-350 m., cut across by the Black Volta, the only perennial system, which runs north to South across the region. The floodplain soils vary from brown sandy clays to silty clay loams (FAO 1967). Apart from this, the highly weathered soils derived from granites are easily waterlogged and eroded. Geologically, these are characterized as the Upper and Lower Birrimian, the Upper with flat plains cut by granite outcrops, the Lower by outcrops of red laterite just below the subsurface (Blench, 2006b).

The vegetation is Guinea savanna, with a high density of typical tree species, while the soils are mainly sandy loam with patches of laterite in some of the communities (Annex 11). The low population densities observed across most of the communities in the region (Annex 11) have permitted a remarkable conservation of savanna vegetation, quite unlike much of the remainder of Northern Ghana. Typical anthropic species are locust (*Parkia* *biglobosa)*, shea tree (*Vitellaria paradoxa)*, mahogany (*Khaya senegalnesis)* and the silk-cotton (*Ceiba* *pentandra)*. Baobabs (*Adansonia digitata)* are very characteristic of former human settlement. Introduced trees such as, neem (*Azadirachta indica)* and mango (*Mangifera indica)*, are common in villages and increasingly common as escapes in uncultivated areas. However, much of the eastern stretches of the region are covered in dense forest (Blench, 2006b).

The climatic regime is semi-arid with average annual rainfall of about 900-1200 mm with a mean for three stations over 25 years of 989 mm. The rain falls in a seven-month season from April to October. Rainfall can be very patchily distributed and farmers must often plant seeds two or three times before the rains set in reliably. The region has extremely challenging conditions for farmers, with high temperatures, erratic rainfall and eroded soils resulting in lower crop yields. Reduction or elimination of fallows and an absence of strategies for returning adequate resources to the soil, combined with labour migration that makes typical soil and water conservation strategies difficult to carry out are likely to be the true causes (Blench, 2006b).

The major ethnic groups in the region include Dagaaba, Waala, Lobbi and Chakali (Annex 11). There is no *lingua franca* that serves as an effective medium of intercommunication although a type of Hausa is often used as a market speech in large towns (Blench, 2006b) similar to the situation also observed in Upper East region. This diversity presumably reflects the acephalous social structure characteristic of many peoples of the region. A major change that has taken place since the year 2000 is the movement of large herds of Fulani cattle into the region. (Blench, 2006b). Most of the communities are sparsely populated apart from Daffiama, Bulenga and Tabiesi that are slightly dense. The community leader is the chief who is assisted by the Tindaana.

The farming system in the region is based around sorghum, cucurbits and pulses which would normally be encountered in lower rainfall zones elsewhere (Coull, 1929). Cultivar diversity is low, probably a response to poor soil fertility (Blench, 2006b). The traditional basis of the cropping system throughout the region was pearl millet as reported by Appa Rao *et al*. 1985. The reports further indicate that there are two groups of millet cultivars, a short-season millet harvested in July and a long-season millet, harvested in November or December. The early millet is interplanted either with late millet or sorghum in fields close to the compound where fertility is highest. The further fields are planted with sorghum intercropped with pulses, especially cowpeas and groundnuts (Blench, 2006b). Residual moisture crops grown in this area include bambara groundnut, kersting’s groundnut and the Frafra potato. Maize underwent a burst of popularity during the period when fertilizers were available at subsidized rates and then fell in popularity. More recently it has begun to recover and recent statistics show high planting rates. This is a reflection of an expanding urban market in south-central Ghana and the downwards drift of the cedi, making local staples cheaper (Blench 2006b). Maize produced for cash is very common along the northern edge of Upper West Region, although farmers are at the mercy of unstable government import policies. Rice (*Oryza* *sativa*) is planted in swampy lowlands.

The other major staple and cash-crop is yam. In contrast to UER, yams are widely grown almost throughout the region, except in Lawra where pressure on soil fertility has reduced them to a very minor role (Blench, 2006b). Yams tend to be a male crop, as the labour requirements are very demanding. Yams have the effect of inducing young men to remain in the village, as producing yam is more profitable than going on labour migration and moreover, occupies the farmer throughout the dry season. However, the lack of a role for women has had the paradoxical result that they are now going preferentially on migration. Dry-season cultivation using small irrigation dams comprises mainly vegetables, most commonly onions and tomatoes. Onion cultivation is particularly popular and represents one of the most important agricultural exports from the region (Blench 2006b).

**5.2 Existing Farming System and Problem Analysis**

**5.2.1 Analysis of on-farm livelihood activities in the Upper West Region:** The major cereal crops grown in Nadowli and Wa East districts of the Upper West region are sorghum, maize, millet and rice, while the major legumes are cowpea, groundnut, bambara groundnut and soybean (Annexes 12a and 12b). Kersting groundnut, a minor crop is also grown in Tabiase in Nadowli district. It is assumed that all groups in the communities are involved in the production of the major crops, albeit at different levels. However, women are not involved in sorghum, millet and soybean production in Goriyiri in Nadowli district. Men are involved in the production of all crops and especially sorghum, maize and millet among the cereals and cowpea, groundnut and bambara groundnut among the legumes. The cereals are mainly produced for food, while most of the legumes are produced for cash. Rice and maize are also produced for cash, while kersting's groundnut, cowpea and groundnut are also used more for food than the other legumes. About 40 – 99% of the cereals produced are used for food, with millet and sorghum being the major food crops. About 10-50% of legumes produced are used for food across the communities. However, the greater proportion of legumes produced are cash crops, with soybean being the major cash crop with 90-98% used for cash. The proportion of legumes used for food in Daffiama is greater than those used in the other communities in the region.

The trends in the production of the major crops were almost similar across the region. There is increase in production of maize across the 20 project communities in the region. The reason given for the increase is the exposure of the respondents to maize improved management practices such as use of seed of improved varieties and the good response of the crop to fertilizers and hence higher yields are realized than sorghum or millet. Rice production is also increasing in Goriyiri and Kalsegra in Nadowli district and in Kpalinye and Naaha in Wa East district due to the use of improved management practices. The production of sorghum and millet is decreasing across all communities due to erratic rains, low soil fertility, poor management practices and *Striga* infestation. Cowpea production is increasing across the region except at Zinnye where cost of insecticides is discouraging production. The increase in trend across the nine communities is due to use of improved management practices such as improved varieties and adoption of appropriate spraying regimes. The trend in production of the other legumes is increasing in some communities due to availability of improved management practices and tolerance to drought, while the reverse is the case in other communities where erratic rains and poor soil fertility reduce production. The trend in the production of most crops in Tabiase and Zinnye are decreasing, while the trend in most crops produced in Kpalinye and most legumes produced in Kalsegra and Bulenga are increasing due to low cost of production, high market value and ready income realized from the sale of the legumes. There is the need to consolidate the gains made in the use of improved management practices to improve crop production especially in Nadowli district where use of improved management practices is lagging behind.

The major livestock species produced across the 20 communities in the Upper West Region are goat, sheep, cattle, pigs and poultry (Annex 13). The most common livestock species raised across the communities are goat, poultry and sheep. Rabbit and donkey are minor livestock species as these are restricted to Tabiase, Daffiama and Goriyiri in Nadowli district. Women are generally not involved in livestock production in Goriyiri, while a few keep poultry, pigs and goat in Kpalinye in Wa East district. The trend of gender participation in livestock production in the other communities was not captured during the study. Rabbit and poultry are mainly raised for food as 50 – 99% of this category of animals is mainly used for food. Goat, sheep, cattle and pigs are the major sources of cash as 50-99% of these animals are sold for cash, while donkeys serves as means of traction and also provide cash.

The trend in livestock production is generally decreasing in Nadowli district. However, the trend is increasing for cattle and rabbit in Tabiase and for donkey in Goriyiri due to proper care (Annex 13). The trend is increasing for cattle due to proper care by the Fulani and for poultry due to its use for spiritual activities in Kpalinye in Wa East district. The trend is increasing for all the livestock species except pigs in Loggu due to improved veterinary services, availability of pasture and good market price that promote production. The general decreases in trend across the majority of communities are due to increase in prevalence of diseases and mortality, high incidence of theft and poor management. Thus, Loggu is a good example of community whose experiences can be replicated especially in Nadowli district to promote livestock production. Promotion of community livestock workers and enforcement of security measures and community awareness of punishments for theft may reduce the incidence and improve production.

**5.2.2 Analysis of off-farm livelihood activities in the Upper East Region:** Processing of cereals and legumes is a major activity in Tabiase where more people are involved than in the other communities in Nadowli district (Annexes 14a and 14b). Fewer people are involved in processing in Daffiama and Kalsegra in Nadowli district; Zinnye and Loggu in Wa East district. Less people are involved in the processing of millet, rice; groundnut, bambara groundnut and soybean compared to other crops across the communities. All crops produced are processed by threshing, winnowing and cleaning. The produce is sold whole grain or grind into flour or paste for food for domestic consumption or sale in the market. Sorghum is also processed into malt or pito, a type of local alcoholic drink. Many recipes are derived from cowpea and few from soybean. Groundnut is processed into paste and oil. However, knowledge of processing soybean is limited and *dawadawa* is the only recipe derived from soybean at present. There is a need to conduct trainings on soybean processing especially among women across all the communities in the project area. The trend in processing of the major crops is increasing either due to increase in domestic consumption or increase in demand as the sale of the produce generates income. Processing of the cereal crops is increasing mainly due to increase in domestic consumption of the products. However, the need for more income was also indicated as another reason for the increase. Processing and marketing of the legumes are on the increase mainly to generate income to meet domestic financial obligations (Annexes 14a and 14b). High market price and demand of the products are the major incentives for the increase in processing and marketing of farm produce. Low yields, low production level and lack of knowledge of processing are some of the major factors limiting processing and marketing of agricultural produce in the region.

Processing of livestock products is limited to an average of 30-40% of the households per community (Annex 15). More households are involved in livestock processing and marketing in Tabiase than the other communities. Goat, poultry, pig and sheep are the most common livestock species processed mainly for domestic consumption, while these categories of animals in addition to cattle are also processed for cash. The trend in processing of livestock in Tabiase in Nadowli district and Kpalinye and Loggu in Wa East district is on the increase due to increase in domestic consumption. However, the trend is decreasing in other communities due to theft and increase in animal mortality as a result of diseases which reduce the number of animals for processing. More households are involved in the marketing of livestock products in Tabiase, Goriyiri and Kpalinye than other communities. The trend in marketing of livestock products is increasing in Tabiase, Goriyiri, Ombo, Kpalinye, Naaha and Loggu due to increase in demand for the product and need for more cash by households. The trend is on the decrease in the other communities due to low production and theft. It is apparent that more households are involved in the sale of whole crop or livestock produce than processing, indicating that there is opportunity for value addition for both crops and livestock to improve income and livelihoods at the community level.

**5.2.3 Crop and livestock census and prioritization in Upper West Region:** The ranking of the crops revealed that maize was ranked first for both food and cash across the region (Annex 16a and 16b). Sorghum was ranked second, followed by rice and millet was ranked fourth in importance for food and cash. Cowpea was ranked first followed by groundnut in Nadowli district, while groundnut was ranked first followed by Soybean and cowpea in Wa East district. Thus the popularity of the legumes in Nadowli district was in the order: cowpea > groundnut > bambara groundnut >soybean > kersting’s groundnut. The ranking in Wa East district was in the order: groundnut > cowpea = soybean > bambara groundnut. Thus the most important food and cash crops in the region are maize, sorghum, cowpea, groundnut and soybean.

Poultry, cattle and pigs are the most important animals for food and cash depending on the community in Nadowli district (Annex 16a). Cattle are the most important in Tabiase, Ombo and Kalsegra where goats and sheep are second and third, respectively. In Daffiama, pigs are the most popular animal species, while poultry is second and goat is third in ranking. The situation in Wa East district showed that sheep is the most popular food animal, while cattle was ranked first for cash in Kpalinye, Naaha and Zinnye (Annex 16b). Goat and poultry were next in ranking for both food and cash across the three communities. However, goat was ranked first, and sheep and poultry ranked second and third, respectively, for both food and cash in Loggu and Bulenga. Although all livestock species are used for food and cash, cattle is the most important livestock species for income generation, while poultry, sheep and goats are the most important food animals in the region. Other livestock species of less economic importance identified in the region include rabbits and donkey. Rabbits are kept by few households and attract low patronage in the market. Donkeys and also cattle are used for animal traction and transport.

**5.2.4** **Problem census, prioritization and coping strategies**: The most recurring crop production problems mentioned across majority of the communities in the region were erratic rainfall, inadequate land preparation equipment, and lack of improved seeds, declining soil fertility, *Striga* infestation, pests, diseases and weeds (Annex 17). Farmers plant early maturing varieties or plant early to cope with the erratic rainfall in the region. These practices result in greater crop yield, though costly and labour intensive. It seems 50-100% of the respondents has been using these practices. The trends in use of the strategies are increasing due to increase awareness. The main coping strategy for lack of land preparation equipment like tractors is the use of animal traction. The practice enables timely and better land preparation, although it is costly and is sometimes not available. About 70% of the respondents adopt animal traction for land preparation. However, the practice is declining due to unavailability of herders and the fact that children who are supposed to assist are now in school. The use of local varieties in the absence of improved crop varieties is cheap and timely, but result in late maturity and low yields. Almost all the respondents are using the local varieties, but the trend is decreasing due to the recent emergence of improved varieties in the region. Application of chemical fertilizers is the main coping strategy for declining soil fertility, but the trend is reducing due to unavailability and high cost of the fertilizers. Insecticide spray is used to control insect pests of cowpea, herbicides are applied to control weeds and the Purdue Improved Cowpea Storage (PICS) bags are used for cowpea storage. Although pesticides are effective and result in higher yields, the practice is unsafe to humans and the environment, unless safety precautions are followed. The trend in the use of these practices is increasing because they are effective and improve product quality and reduce drudgery.

Lack of machinery, skills and storage facilities were the major crop processing problems mentioned (Annex 17). Lack of organized market, low produce price and inadequate means of transportation were the major marketing problems mentioned. No coping strategies were proffered for these problems which are very crucial to value addition and livelihood improvement in the region. The major livestock production problems mentioned at Daffiama were high mortality due to diseases, lack of improved breeds, high incidence of theft, inadequate watering points, inadequate housing and inadequate veterinary services. These problems could as well be replicated across all the communities in the region because there is little variation in the farming system within the region.

The situation in Wa East district is almost similar to Nadowli as most of the constraints limiting crop and livestock production and the coping strategies adopted in the two districts are similar (Annex 17). Farmers in the region adopt farmer to farmer information sharing on integrated *Striga* control strategies to reduce *Striga* infestation. However, this strategy is not effective. The sources of these coping strategies adopted in the region are mainly from MoFA, GCC Ltd., and the farmers themselves. The integration of use of rotation, farm yard manure, fallowing, hand pulling, field sanitation and resistant varieties will prove effective for *Striga* control.

**5.2.5 Vulnerability to shock or stress and coping strategies:**

Drought and low product prices, each with very high relative importance (10) were mentioned as the major types of shock. The respondents mentioned that bush burning and deforestation are the major causes of drought which occur annually. The coping strategies are prayers and use of early maturing varieties. Low product prices also occur annually and are caused by lack of access to market and the presence of few buyers in the communities. The produce has to been taken to distant markets at high cost and sold at low price. Thus poor market infrastructure of roads and transportation could be the major cause of inadequate access to markets.

**5.3 Resource Analysis and Opportunities in Upper East Region**

The resource map of Tabiase in Nadowli district shows the presence of mango and cashew plantations, flooded area, Fulani settlement, grazing area, borehole and dug out (Fig. 18). There are opportunities for irrigation farming, crop-livestock interaction and fish production in the community. The integration of these activities will reduce pressure on farmland and improve the declining soil fertility reported in the community. Vegetables and more tree species could be added to the crops grown to improve land use and livelihoods.

Daffiama is a large community and serves as market center to the neighbouring communities in the region. However, the community is medium resourced with pond, borehole, credit center and dam among others. The community can expand the market opportunities and improve livestock production in view of the prevailing opportunities.

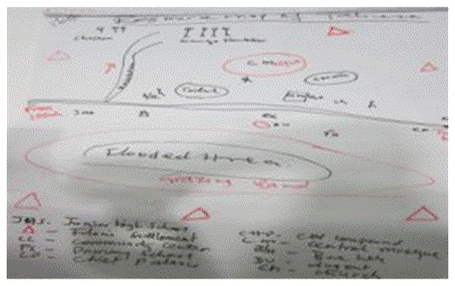
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Figure 18. Resource map of Tabiase, well resourced community in Nadowli district

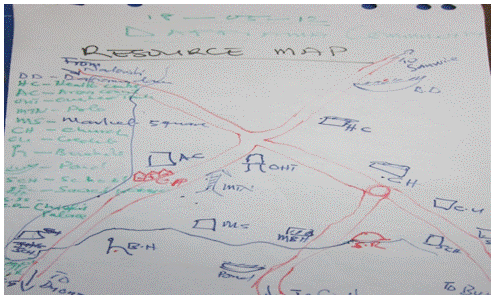


Figure 19. Resource map of Daffiama, medium resourced community in Nadowli district

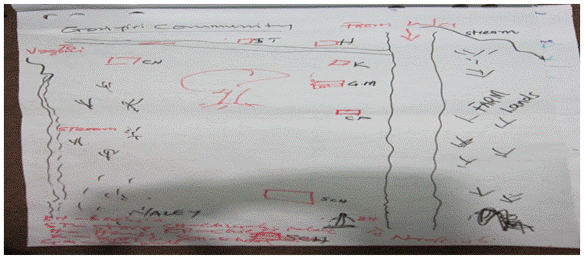


Figure 20. Resource map of Goriyiri, low resource community in Nadowli district

The three communities of Goriyiri, Ombo and Kalsegra are low resourced with presence of farm lands and in land valley in Goriyiri (Fig. 20) and Ombo There is an opportunity for community fish or rice production or both in each of the two communities. Vegetables could also be added to the crop inventory by use of irrigation through under ground water abstraction of wash bore holes and tubewells. There is presently less pressure on land dure to low population and scattered settlement parterns. Land use planning should be articulated to reduce overcultivation of farm lands that may pose more problem to the declining soil fertility, with increase in population.

The situation in Wa East district shows that the two communities of Naaha and Kpalinye (Fig. 21) are low resourced as there is no indication of resource elements apart from land. These are sparsely populated communities with low resource endowments, unlike Zinnye, although also sparsely populated has several grinding mills and can serve as processing center in the district.

Zinnye is a medium resourced community with several grinding mills, low lying land, kraal land and stream (Fig. 22). There are opportunities for crop-livestock interation, irrigated farming and fish and vegetable production in the community. Harnessment of these resource endowments will improve the inventory of crop and livestock enterprises and value addition for improving livelihoods in the region. Also medium resourced is Bulenga with bore hole, community market

and network of roads that provide access within and to other neigbouring communities, thus serving as market infrastructure and access to the community market.

Loggu community is relatively more resourced than the other communities sampled in the district (Fig. 23). The major resource elements in the community include stream, market, orchards, wells, forest plantation, dug outs, kraal, and farm lands among others. There are opportunities for crop-livestock interaction, irrigation, fish production and marketing of farm produce. Loggu is fairly large and is only second to Bulenga in population with clustered stellement. There is need for improved land use planning to harness bioresource flow between crops and livestock to improve both environmental and agricultiral sustainability in view of the high population in the community.

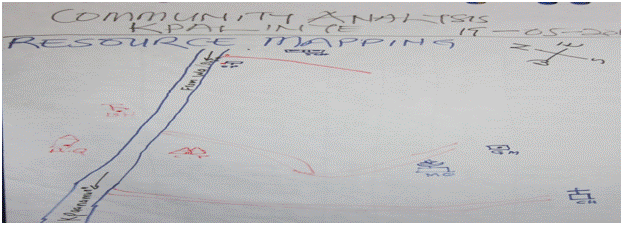


Figure 21. Resource map of Kpalinye, a low resouce community in Wa East district

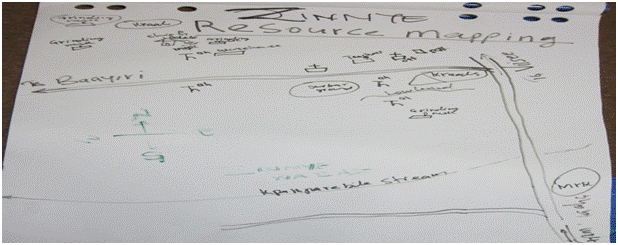


Figure 22. Resource map of Zinnyea, medium resourced and processing center in Wa East district

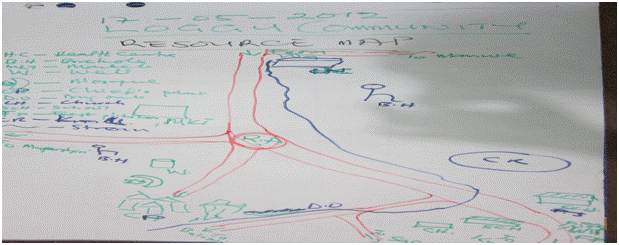


Figure 23. Resource map of Loggu, well resourced and market center in Wa East district

**5.4 Market Network and Market Channels**

Agricultural commodities such as maize, sorghum, yam, cowpea, oil, and tomato are taken from Tabiase to neighbouring markets in Kojokperi, Wa and Busie. The farmers buy soap, fish, and soup ingredients from these markets (Fig. 24). Farmers and middlemen from Goriyiri sell poultry and cattle; and rice, millet and cowpea in Tangasia, Nadowli and Wa markets, and buy building materials and soup ingredients on return. The farmers in Ombo patronize Jang, Sankana, Kaleo and Wa markets. They sell cereals, legumes and livestock products; yams, charcoal, goats and grains; and buy fertilizers, cement, roofing sheets and soup ingredients from the markets.

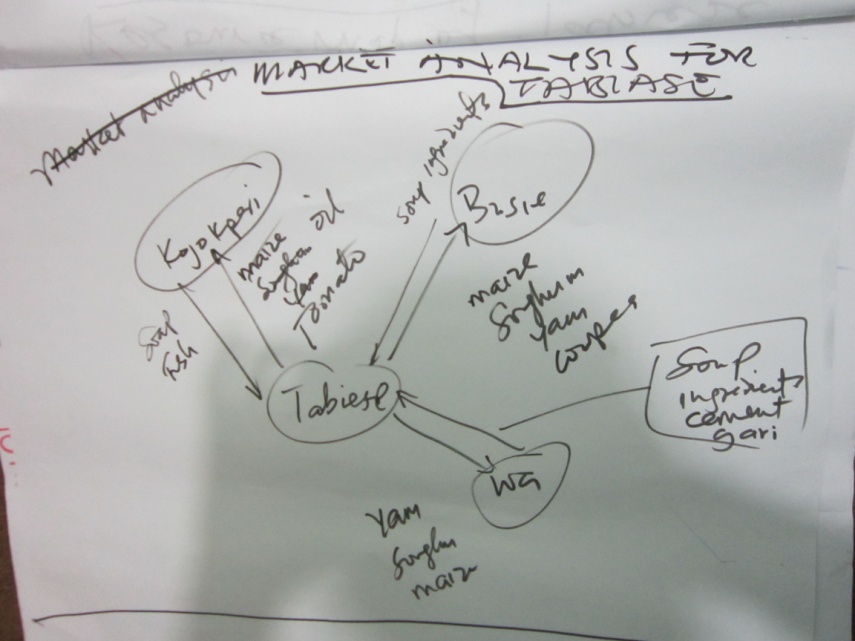


Figure 24. Market network in Tabiase in Nadowli district

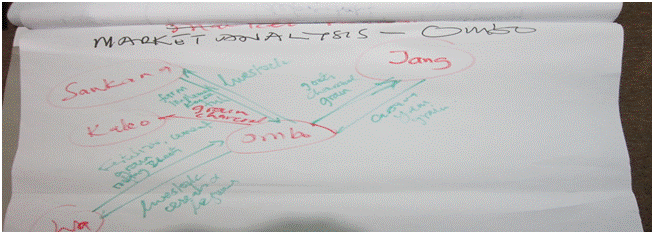


Figure 25, Market network in Ombo in Nadowli district



Figure 26. Market network in Daffiama in Nadowli district

Daffiama is a large market center in Nadowli district. Farmers and middlemen move crop and livestock products in and out of Daffiama as they also patronise the community markets in Wa, Busie, Tangesia, Nadowli and Sakana among others (Fig. 26). Both farm and industrial produce are interchanged among these community markets.

The market network in Wa East district is also characterised by movement of farm produce between Kpalinye and Kpaglahe and Wa. Food stuff, charcoal, poultry and shea nuts are moved out of Kpalinye to the other markets, while farm implements, cement, clothing, soup ingredients and etc are bought from these markets and moved to Kpalinye (Fig. 27). Similar market network exist between Naaha with Jang, Techiman, Wa and Baayika (Fig. 28).

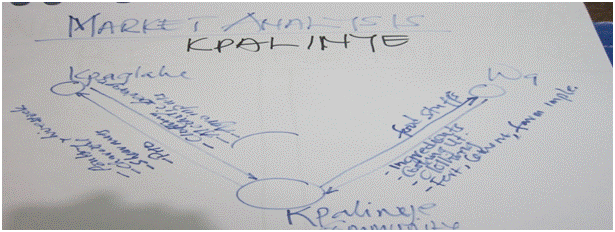


Figure 27. Market network in Kpalinye in Wa East district

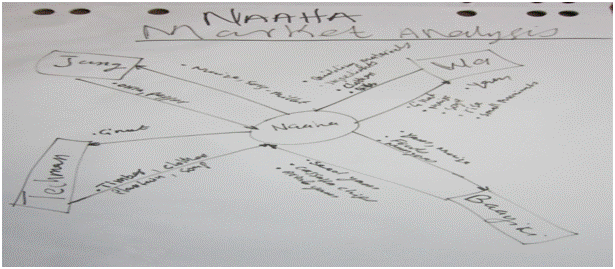


Figure 28. Market network in Naaha community in Wa East district

Loggu has a more elaborate market network with Wa, Panyen Tanga, Kulkapang, Chaase and Kendigi (Fig. 29). Apart from farm produce and soup ingredients, other commodities of exchange include second hand clothings, manufactured goods and building materials.

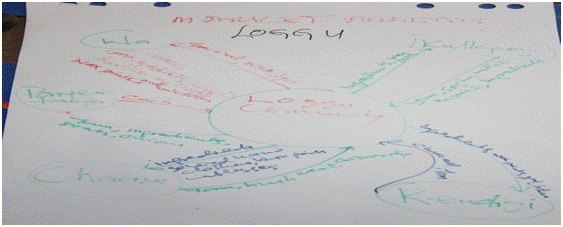


Figure 29. Market network in Loggu in Wa East district

**5.5 Community Institutions: Linkages, Purpose and Strength**

**5.5.1 Existing community groups and links to livelihood support services:** The summary of CBOs identified in Nadowli and Wa East districts in Upper East Region are presented in Table 7. Three CBOs currently exist in Tabiase in Nadowli district and are working with MoFA. Several NGOs such as WVI and JICA have some links and provide support to some groups in the community (Fig. 30). Although no CBOs were identified in Goriyiri, the presence of MoFA, GHS, CSIR-SARI and GES were acknowledged. Some donor funded projects such as WAAPP and N2 Africa as well as NGOs such as PRONET North, ADRA, and GWI had some links with the farmers in the community. At Ombo, two CBOs were identified along with several NGOs including CARE and MAP in addition to government institutions. About 5 CBOs were identified along with government and NGOs in Daffiama. The NGOs include WVI, OLAM, CARE, CRS and ADRA (Fig. 31). In Kalsegra, the main NGOs present were ADRO, ADRA, WVI, and ZOOMUON that are probably linked to the 3 CBOs identified. Activities of government agencies such as CSIR-SARI, MoFA, GES and GHS were also reported to be linked to the CBOs in each community.

Table 7: Names of Community Based Organizations identified in Upper West Region

|  |  |  |
| --- | --- | --- |
| **District** | **Community** | **Name of Community Based Organizations (CBO)** |
| Nadowli | Tabiase | 1.Sungwuli group  2.Sungmenga farmers group.  3 Sungbala group |
|  | Goriyiri | Not listed |
|  | Ombo | 1.Langbari farmers group  2.Sungwuli farmers group |
|  | Daffiama | 1.Suntaaa Nuntaa 1&2  2.Kamyin 1&2  3.Trekando  4.Mambo  5.Sunado |
|  | Kalsegra | 1.Mother to mother  2.Tietaa  3. Kimtialo. |
|  |  |  |
| Wa East | Kpalinye | 1.Mwin Sumbo,  2. Samgbawietaa,  3. Sumgtaa |
|  | Naaha | 1.Sungrala  2. Sunlaa Wamlaa  3. Kwinilaa Sumbu  4.CHLPS  5.Swazal-lakpoliye |
|  | Zinnye | 1.Zinnye Posee  2.Zinya Saazu  3.Sungbaala Women group |
|  | Loggu | 1.Kanyili Sunla Women  2.Summanhi Men  3.Ajan Suma  4.Outgrowers Wuchanya farmers |
|  | Bulenga | 1.Malitar group  2.Sun Suna group  3.Dry season farmers  4.Numbu farmers  5.Tibaraka group  6.Sunsalle group |

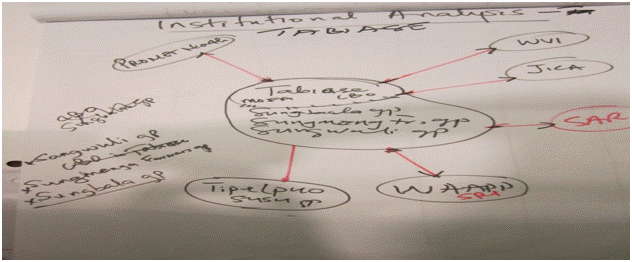
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Figure 30. Venn diagram of CBO in Tabiase in Nadowli district

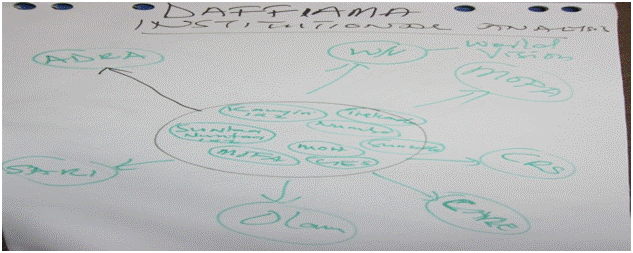


Figure 31. Venn diagram of CBO in Daffiama in Nadowli district

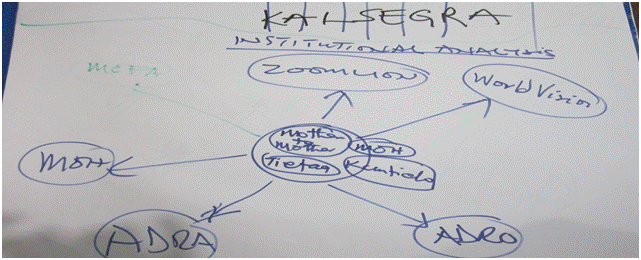


Figure 32. Venn diagram of CBO in Kalsegra in Nadowli district

The propenderance of the CBOs and NGOs in Wa East also showed that in Kpalinye, 3 CBOs were identified along with RAAP, FSC, ADRA and the traditional government institutions. Also 5 CBOs were identified in Naaha that may have links with PLAN GH, ADRA, OLAM, FSC and WFP (Fig. 33). In Zinnye, 3 CBOs were identified and the main NGOs present include SILDEP, Masara Na’arziki and OLAM along with government institutions (Fig. 34). There were 5 CBOs identified in Loggu and the following NGOs: Africa 2000 Network, Cotton Company, RAAF, ACDEP and ADVANCE (Fig. 35). The situation in Bulenga showed 5 CBOs (Table 7) and several NGOs including TUDRIDEP, YARO, ADVANCE, Masara Na Arziki, OLAM, PDL, ADRO and the government institutions (Fig. 36). It is apparent that there are more NGOs in the Upper West region than the other two regions. This could be a recent happening as Blench (2006b) reported very few NGOs in the region and rated the region as having the least number of NGOs in the recent past. However, the purpose and strengths of the CBOs identified cannot be ascertained as SWOT analysis was not conducted for any one of them as at the time of the study.

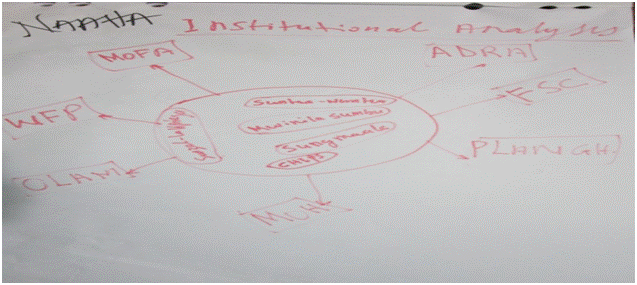
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Figure 33. Venn diagram of CBO in Naaha in Wa East district

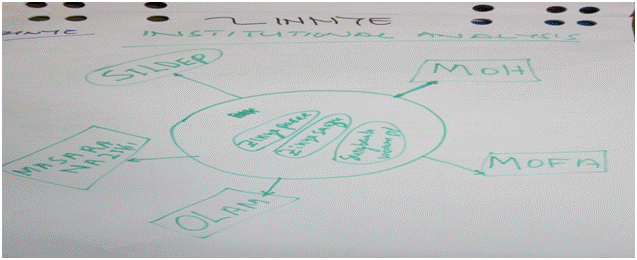
****

Figure 34. Venn diagram of CBO in Zinnye in Wa East district

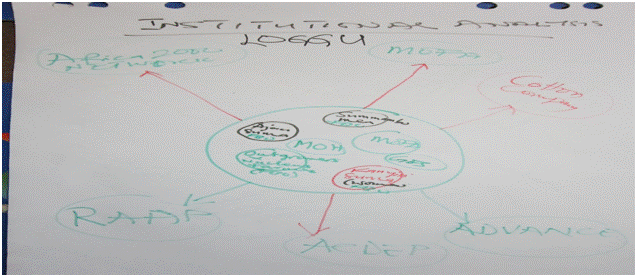
****

Figure 35. Venn diagram of CBO in Loggu in Wa East district

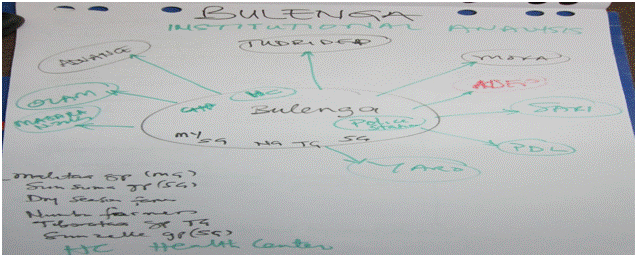
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Figure 36: Venn diagram of CBO in Bulenga in Wa East district

**6.0 GENERAL DISCUSSION**

**6.1 Biophysical Characteristics and Agroenvironment**

The climate of the three regions that constitute the project area is relatively dry, with a single rainy season that begins in April and ends in October. The amount of rainfall recorded annually varies between 900 mm and 1200 mm thus indicating a semi-arid climatic regime. The vegetation is characteristically northern guinea in northern region and sudano-sahel in the extreme Upper East region. The soils are typically sandy loam with some gravel across some areas. There are several ethnic groups but there is no *lingua franca* that serves as an effective medium of intercommunication. However, Hausa and Waali readily come to the rescue in the Upper East and Upper West regions, respectively while Dagbanli and Hausa provide similar media for intercommunication in the northern region. This diversity presumably reflects the acephalous social structure characteristic of many peoples of the three regions (Blench, 2006b).

The low population pressure and under cultivation of land in Upper West and Northern regions is an advantage towards sustainable land management provided such practices are initiated early. The semi-arid climatic condition and fragile soils that has hitherto been supporting millet – based farming system will need consistent amelioration to support the emerging maize-based system. One of the characteristics of semi-arid climate or the savanna is the unpredictability of onset and establishment of rainfall. This is further confirmed by the fact that erratic rains have often been mentioned by farmers as a priority problem among the arrays of problems identified in the project area. The project activities should therefore focus on interventions that will improve the soil conditions and increase moisture availability during greater part of the rainy season.

**6.2 Existing Farming System, Problem Analysis and Coping Strategies**

Pearl millet and sorghum constituted the major crops grown in the Upper East and Upper West region in the recent past as reported by Blench (2006a and 2006b) and SRID (2010). However, maize is replacing sorghum and pearl millet in the project area as observed from the trends during the community analyses. The promotion of improved crop management practices such as use of fertilizers and improved varieties; and increased income from maize are the major catalysts for increase in maize production. Farmers realize higher yields and income from maize than from sorghum or millet. However, millet and sorghum are considered as veritable means of food security because they can thrive in poor soils and under low moisture regimes. The gradual shift towards maize will therefore change the farming system and the dimension of food security in the regions. Therefore, the best alternative to improve food security is to promote the production of extra-early and early maturing maize varieties along with legumes. The trend in the production of legumes such as groundnut, cowpea and soybean is on the increase and this provide immediate succor for cereal-legume integration to improve crop productivity and diversity.

The production of preferred livestock species such as poultry, sheep, goats, pigs and cattle is also on the increase as these provide both food and cash. Another dimension to improving the farming system is the promotion of crop-livestock interaction with a view towards flow of manure from livestock to crop farms and crop residue from crop farms to serve as livestock feeds. The use of cattle and donkey for animal traction should be encouraged and improved upon to solve the main problem of lack of land preparation equipment in the project area, another dimension to bio-resource flow in an integrated production system. The system integration of crops and livestock production could be *in-situ* or *ex-situ*. *In-situ* integration is where the same farmer produces both crops and livestock and ensures the flow or resources between the enterprises; while *ex-situ* is where crops and livestock are produced by different farmers, but production resources are exchanged among their individual enterprises. The lease of land by crop farmers to serve as kraal to Fulani herders immediately after harvest is a good example of *ex-situ* integration. The practice provides immediate feed to Fulani cattle, while soil fertility is increased and *Striga* infestation is reduced by the animal droppings.

Diverse crop and livestock production problems, which can mainly be categorised into biophysical and socieconomic have been limiting the productivity of the farming system. Crop production constraints include erratic rainfall, lack of land preparation equipment, *Striga* infestation, declining soil fertility and lack of improved seeds. Livestock production constrainst include prevalence of diseases, lack of adequate feeds and housing, prevalence of endo- and ecto-parasites and inadequate veterinary services. These constraints should be incorporated into the community action plan developed together with the farmers yearly to generate solutions. Farmers have also proffered some coping strategies which should be evaluted along with other improved practices in on-farm demonstrations to generate sustainable solutions. Apart from domestic consumption, there is less contribution of value addition to livelihoods, as the current skills in processing and marketing are essentially traditional and subsistent. There is lack of machinery and skills for processing most crops, especially soybean.

**6.3 Resource Analysis and Opportunities**

There is clear indication that competition for use of natural resources is on the increase as shown by increase in incidences of shocks such as floods, drought, bush burning and activities of the small miners that destroy the top soils and charcoal gathers that increase the rate of deforestation. The persistent decline in soil fertility and increase in *Striga* infestation across all regions is an indication of increase in continuous cultivation, probably as a result of increase in population or shortage of community land. The fact that shortage of grazing land was mentioned as major reason for the decline in production of cattle and donkeys is a clear indication of land shortage. The farmers crave for fertilizers is also a clear indication that most of the cultivated soils in the project area have been depleted of their natural fertility. A casual observation across the regions however indicate that there is large expanse of land especially in the northern and Upper West regions which are still laying fallow with high level of natural fertility. Blench (2006b) has aptly described this zone as being under populated and under cultivated. This expanse of land will be readily available for food production as competition for community lands become more acute and crop yields continue to decline in the areas that are presently habited, which are becoming progressively marginal.

Similarly, some communities have resource endowments which have not been fully exploited. These include low lying lands or inland valleys that can be utilized for rice production and irrigation farming; burrow pits or dug outs for fish production and animal watering points, and inaccessible land and kraal land that can be handy for land rotation and crop livestock interaction among other resources. Presently, the vegetation in the Northern and Upper West regions is experiencing intensive exploitation from the charcoal gathers and this may pose a big threat to environmental sustainability.

The issue of increase in land degradation is more acute in the Upper East region where the population is relatively high and the vegetation and soils have been depleted by frequent bush burning and continuous cultivation. Thus land management practices will be essential for sustaining agricultural productivity in the fragile ecosystem in the Upper East region and the human endangered ecology in the Upper West and Northern regions. This is because environmental sustainability is more crucial for the success of sustainable agriculture which focus on system integration; species diversity, ecological friendliness, equity, humaneness, adaptation; economic viability and social justice among the members of the ecosystem. The main goals of sustainable agriculture are conservation of natural resources and satisfaction of human needs through poverty alleviation and increase in food security at household levels, as articulated by the project objectives.

**6.4 Market Network and Channels**

Organized markets are virtually non-existent across many communities. There is less incentive to

produce more because of low prices attracted by the farm produce which are often taken to distant markets along poor roads that attract high transport fare. The present global focus of market-driven agriculture cannot progress profitably in the regions without processing and marketing skills and infrastructure. There is the need to link farmer groups with input and output market to improve the market channels. There is also the need to liaise with the policy makers to establish community markets and provide market infrastructures such as roads to improve access. Although improvement in crop yields and linkage to input and output markets could improve farmer income, there is the need to link farmers to credit institutions that could provide interest-free or low interest loans. This is because inadequate credit has also been ranked as a top priority constraint that prevent farmers from paying for inputs and farm operations. This major problem was especially identified among women and youths that have low economic base and therefore more vulnerable than men in the regions.

Capacity strengthening of community members in value addition through training on end use of soybean that is emerging as a cash crop across the regions will improve its utilisation, housheold nutrition and income. The lack of knowledge or skills for soybean processing and the low price it attracts presently in some communities are major limiting factors for its production. If maize will emerge as the major food and cash crop among the cereals, then soybean production should follw suit to augment soil fertility and reduce *Striga* infestation which are the major challenges that will emerge subsequently. Maize can be grown in rotation or as an intercrop with soybean to suatain land productivity. Oil processing and feed millers in larger towns of Tamale, Bolgatanga or Wa can be linked to soybean producing communities for ready market. Both middlemen and processors can provide ready market for farm produce at the community level provided the level of production is high and can suatain apprecaible level of economies of scale for the buyer.

**6.5 Community Based Institutions, Linkages and Capabilities to Resolve Problems**

The presence of both non governmental and government institutions in the communities is high. It has been observed that these institutions presently have or had some links with the farmer groups in most of the communities in the three regions. Although other sectors apart from agriculture are also being patronized by these institutions, farmers also had a fair share of their services. Several community based organisations were identified during the study in almost every community. The PREA approach which adopts the farmer to farmer dissemination of proven technologies has so far been initiated starting from year one (Yr 1) of the project with selection of lead farmers and community seed producers by the CBOs. These lead farmers are expected to conduct on-farm demonstrations to generate solutions to the production problems identified; while the community seed producers will produce certified seeds of improved crop varieties to mitigate the challenges of lack of improved seeds that has often been mentioned across the three regions. These crop varieties which could be multi-stress resistant (resistant to drought, *Striga*, pests and diseases) extra-early or early maturing and high yielding will be sourced from both natioanl and international research institutes for inclusion in the project programme.

**RECOMMENDATIONS**

From the forgoing results of the community analysis, the following recommendations are made to achieve the project objectives:

**Crop production and soil management interventions**

* Promote sustainable land management practices to reverse land degration and sustain system productivity;
* Test the farmers coping strategies along with other best practices in on-farm demonstrations to generate solutions to the problems identified;
* Promote community – based seed production schmes to make improved seeds available at the community level;
* Source improved soil management and improved crop varieties that are early or extra early maturing, *Striga and/or* drought tolerant and disease/pest resistant from research institutes and test on farm after validating on-station in mother trials;
* Link community seed producers to private seed companies to enhance availability of improved seeds across all regions of Ghana and ensure sustainability;
* Promote cereal – legume integration through intercropping and rotaion to improve system productivity;
* Promote crop-livestock interaction for system integration and bioresouce flow;
* Conduct trainings on improved crop management practices, pesticide use and *Striga* control for participating farmers at community level.

**Livestock production interventions**

* Source improved breeds of poultry, sheep and goats from research institutes for multiplication and upgrading of local breeds;
* Promote poultry, sheep and goat multiplication and share scheme especially among women and youths to improve their economic base;
* Encourage the activities of community livestock workers to supplement veterinary services at the community level;
* Conduct training on improved livestock management practices for participating farmers at community level.

**Processing and Market interventions**

* Conduct trainings on processing of soybean for women groups at community level;
* Link farmers groups to input-output market, especially for soybean and maize;
* Conduct trainings for farmers groups on processing and marketing skills;
* Collect and share market information, especially price, among farmer groups;

**Advocacies and policy issues**

* Liaise with traditional leaders and policy makers to reduce the activities of small miners, charcoal gathers and bush burners to reverse land degradation;
* Liaise with policy makers to improve market infrastructure and market days;
* Involve both government and NGOs in project implementaion and capacity building activities of the project.

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**Annex 1: Biophysical characteristics of the project communities in Northern Region**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **District** | **Community** | **Population/**  **settlement** | **Comun. Hierarchy**  **/ethnic groups** | **Agro-ecolo./**  **Vegetation** | **Soil type** | **No. present** | | |
| **M** | **F** | **Total** |
| West Gonja | Busunu (38 km from Damongo District Capital (DC) | 2461 (1205 M, 1256 F)/clustered | Chief, Tanaduwarea/  Gonja, Akan, Fulani, Dagarti | Northern Guinea/semi deciduous | Sandy loam | 30 | 24 | 54 |
|  | Sori No.1 (14 km from DC) | 290 (138 M, 152 F)/Scattered | Chief, assemblyman/  Bimoba, Gonja, Dagomba, Frafra, Mamprusi | Northern Guinea/semi-deciduous | Sandy loam | 27 | 21 | 48 |
|  | Damongo Zongo (0 km) | 3000 (1261 M, 1739 F) clustered | Chief, assemb/Gonja, Dagarti Dagomba, , Gousi, Sisala, Moshie, Frafra, | Northern Guinea/semi-deciduous | Sandy loam | 30 | 35 | 65 |
|  | Jonokponto  (22 km from DC) | 520 (253 M, 267 F)/clustered | Chief, Assemblyman/  Gonja,Wala Dagomba, Dagarti, | Northern Guinea/semi-deciduous | Sandy loam | 23 | 33 | 56 |
|  | Frafra No.4  (132 km from DC) | 180 (88 M, 92 F) scattered | Gonja Chief, Youth Leader/Gonja | N.G./semi-deciduous | Sandy loam | 16 | 14 | 30 |
| Savelugu/  Nanton | Duko (14 km from DC) | 1011 (234 M, 777 F), clustered | Chief, Walana/  Dagomba, Fulani | Northern Guinea/shrubs | Sandy gravel | 70 | 16 | 86 |
|  | Libga  (6 km from DC) | 2000 (953 M,1047 F), clustered | Chief, Wulana  /Dagomba, Ewe | Northern Guinea/shrubs | Sandy gravel | 26 | 17 | 43 |
|  | Kanshegu  (1 km from DC) | 2231(1070M, 1161 F)clustered | Chiefs, Wulana, /Dagomba, Ewe, Moshe, Fulani | Northern Guinea/shrubs | Sandy gravel | 54 | 91 | 145 |
|  | Jana (16 km from DC) | 407 (155 M, 253 F) clustered | Chief, Wulana,  /Dagomba, Moshe, Fulani, Mamprusi | Northern Guinea/shrub | Sandy gravel | 28 | 28 | 56 |
|  | Manguli  (20 km from DC) | 260 (123 M,137 F)  Clustered | Chief, Wulana,  /Dagomba, Fulani | Northern Guinea/shrubs | Sandy gravel | 28 | 13 | 41 |
| Talon/Kumbungu | Dundo ( 10 km from DC) | 850/ clustered | Chief, Kpalana, Dagomba, Frafra, Builsa, Dagarba, Ashanti and Gonja | Northern Guinea/trees | Sandy loam | 25 | 22 | 47 |
|  | Kpachi  (12 km) | 577/clustered | Chief, Kpalana/Dagomba, Akan, Ewe, Kasina | Northern Guinea/trees | Sandy loam | 43 | 78 | 121 |
|  | Tingoli (12 km from DC) | 2595/clustered | Chief, Kpalana/ Dagomba | Northern Guinea/trees | Sandy loam | 29 | 9 | 38 |
|  | Zugu (-) | 3850/clustered | Chief, Kpalana, Dagomba, Fulani | Northern Guinea/trees | Sandy loam | 70 | 81 | 151 |
|  | Sabegu (2 km from DC) | 1088/clustered | Chief, Kpalana/Dagomba | Northern Guinea/trees | Sandy loam | 67 | 74 | 141 |
| Yendi | Zang (4 km) | 532/clustered | Chief, Kpalana/ Dagomba, Fulani | Northern Guinea/trees | Sandy loam | 28 | 43 | 71 |
|  | Zakoli (6 km) | 186/clustered | Chief, Kpalaana /Dagomba, Kokomba, Fulani | Northern Guinea/trees | Sandy loam | 10 | 15 | 25 |
|  |  |  |  |  | Total | 604 | 614 | 1218 |

**Annex 2a: Community involvement, relative importance and trends in the production of major crops grown in West Gonja and Savelugu/Nanton Districts in Northern Region**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| District | Community | Crops grown | Involvement (1-10) | | | Relative importance  (1-100) | | Trend  (I/D/S) | Reason |
| West |  |  | Men | Women | Youths | Food | Cash |  |  |
| Gonja | Sori No.1 | 1.Maize | 10 | 8 | 10 | 50 | 50 | I | Staple food/ income |
|  |  | 2.Sorghum | 3 | 4 | 5 | 100 | 0 | S | Low soil fertility/rain |
|  |  | 3.Rice | 5 | 8 | 3 | 10 | 90 | S | Source of income |
|  |  | 4.Cowpea | 5 | 6 | 10 | 5 | 95 | S | High cost of spray |
|  |  | 5.Groundnut | 5 | 7 | 6 | 5 | 95 | S | Low yields |
|  |  | 6.Soybean | 2 | 0 | 4 | 0 | 100 | S | No seed available |
|  |  | 7.Bambara groundnut | 10 | 5 | 3 | 100 | 0 | S | Home use |
|  | Damongo | 1.Maize | 10 | 9 | 10 | 80 | 20 | I | Staple food/income |
|  | Zongo | 2.Sorghum | 10 | 6 | 4 | 100 | 0 | I | Low Intercrop |
|  |  | 3.Rice | 10 | 0 | 10 | 100 | 0 | D | Few farmers grow |
|  |  | 4.Millet | 0 | 7 | 10 | 30 | 70 | D | Animals destroy |
|  |  | 5.Groundnut | 8 | 9 | 7 | 20 | 80 | I | Source of income |
|  |  | 6.Cowpea | 6 | 6 | 4 | 10 | 90 | I | Source of income |
|  |  | 7. Bambara groundnut | 10 | 5 | 6 | 100 | 0 | D | For home use |
|  |  | 8.Soybean | 0 | 8 | 5 | 5 | 95 | D | No seed available |
|  | Jonokponto | 1.Maize | 8 | 9 | 10 | 60 | 40 | D | Low soil fertility |
|  |  | 2.Sorghum | 4 | 0 | 4 | 20 | 80 | D | Low soil fertility |
|  |  | 3.Millet | 3 | 2 | 3 | 20 | 80 | D | Lack of labour, |
|  |  | 4.Rice | 0 | 0 | 5 | 30 | 70 | D | Lack of input |
|  |  | 5.Groundnut | 8 | 8 | 5 | 20 | 80 | D | Lack of labour |
|  |  | 6.Cowpea | 10 | 0 | 4 | 10 | 90 | D | Lack of labour |
|  |  | 7.Soybean | 10 | 5 | 3 | 90 | 10 | D | Low soil fertility |
|  |  | 8. Bambara groundnut | 6 | 7 | 10 | 30 | 70 | D | Low soil fertility |
| Savelugu/ | Duko | 1.Maize | 10 | 6 | 9 | 60 | 40 | I | Improved support |
| Nanton |  | 2. Sorghum | 2 | 2 | 4 | 100 | 0 | D | Low soil fertility |
|  |  | 3. Rice | 9 | 0 | 10 | 10 | 90 | 1 | External support |
|  |  | 4. Groundnut | 10 | 7 | 10 | 10 | 90 | I | External support |
|  |  | 5. Cowpea | 6 | 3 | 5 | 100 | 0 | S | Ready market |
|  |  | 6. Soybean | 6 | 8 | 8 | 10 | 90 | I | Improved practice |
|  | Manguli | 1.Maize | 10 | 2 | 10 | 100 | 0 | I | Main staple food |
|  |  | 2. Sorghum | 5 | 1 | 0 | 100 | 0 | S | Domestic use |
|  |  | 3. Rice | 10 | 2 | 10 | 20 | 80 | I | Source of cash |
|  |  | 4. Groundnut | 3 | 0 | 0 | 100 | 0 | I | Available market |
|  |  | 5. Cowpea | 0 | 6 | 4 | 100 | 0 | D | Insect damage |
|  |  | 6. Soybean | 0 | 8 | 3 | 100 | 0 | I | Population rise |
|  |  | 7.Bambara groundnut | 10 | 5 | 0 | 100 | 0 | S | Insect damage |
|  | Jana | 1.Maize | 10 | 5 | 10 | 90 | 10 | I | Main staple food |
|  |  | 2. Sorghum | 10 | 6 | 4 | 100 | 0 | D | Low interest |
|  |  | 3. Rice | 70 | 2 | 1 | 40 | 60 | I | Improved technol. |
|  |  | 4. Millet | 0 | 5 | 4 | 50 | 50 | D | Low interest |
|  |  | 5. Groundnut | 8 | 8 | 1 | 20 | 80 | D | Low interest |
|  |  | 6. Cowpea | 0 | 6 | 5 | 60 | 40 | D | Drought |

I = Increasing, S = Static, D = Decreasing

**Annex 2b: Community involvement, relative importance and trends in the production of**

**major crops grown in Tolon/Kumbungu and Yendi Districts in Northern Region**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **District** | **Community** | **Crops grown** | **Involvement (1-10)** | | | **Relative importance**  **(1-100)** | | **Trend**  **(I/D/S)** | **Reason** |
| Tolon/ |  |  | Men | Women | Youths | Food | Cash |  |  |
| Kunbumgu | Tingoli | 1.Maize | 7 | 9 | 0 | 80 | 20 | I | Yields increasing |
|  |  | 2. Rice | 8 | 8 | 2 | 15 | 85 | I | Yields improving |
|  |  | 3. Sorghum | 10 | 5 | 0 | 80 | 20 | D | Erratic rains |
|  |  | 4. Millet | 10 | 0 | 0 | 80 | 20 | D | Yields decreasing |
|  |  | 5. Groundnut | 7 | 9 | 8 | 10 | 90 | I | Women livelihood |
|  |  | 6. Soybean | 6 | 9 | 5 | 10 | 90 | I | Women livelihood |
|  |  | 7. Cowpea | 6 | 5 | 6 | 20 | 80 | I | Insect pests |
|  |  | 8. Bambara groundnut | 10 | 0 | 0 | 90 | 10 | I | Food security |
|  |  | 9. Pigeon pea | 10 | 0 | 0 | 100 | 0 | I | Food security |
|  | Zugu | 1.Maize | 7 | 8 | 0 | 85 | 15 | I | Staple food |
|  |  | 2.Rice | 6 | 7 | 0 | 5 | 95 | D | Cumbersome |
|  |  | 3.Sorghum | 8 | 0 | 0 | 90 | 10 | I | Staple food |
|  |  | 4. Millet | 1 | 0 | 0 | 90 | 10 | D | Low yields |
|  |  | 5.Groundnut | 6 | 9 | 0 | 5 | 95 | I | Cash crop |
|  |  | 6.Soybean | 0 | 6 | 0 | 40 | 60 | I | Women livelihood |
|  |  | 7.Cowpea | 7 | 4 | 0 | 80 | 20 | I | High returns |
|  |  | 8. Bambara groundnut | 8 | 4 | 0 | 85 | 15 | I | Domestic use |
|  |  | 9. Pigeon pea | 10 | 0 | 0 | 80 | 20 | I | Domestic use |
|  | Sabegu | 1.Maize | 7 | 5 | 9 | 100 | 0 | I | Staple food |
|  |  | 2.Rice | 10 | 7 | 10 | 90 | 10 | I | Cash for youths |
|  |  | 3.Sorghum | 10 | 4 | 8 | 100 | 0 | D | Low yield |
|  |  | 4.Millet | 10 | 0 | 0 | 100 | 0 | D | Erratic rains |
|  |  | 5.Soybean | 7 | 7 | 4 | 10 | 90 | I | High returns |
|  |  | 6.Groundnut | 5 | 7 | 10 | 10 | 90 | I | High returns |
|  |  | 7.Cowpea | 10 | 5 | 8 | 20 | 80 | D | Pests/diseases |
|  |  | 8. Bambara groundnut | 10 | 4 | 0 | 100 | 0 | S | Low yields |
| Yendi | Zang | 1.Maize | 70 | 5 | 6 | 60 | 40 | D | Low soil fertility |
|  |  | 2.Rice | 10 | 0 | 6 | 10 | 90 | D | Declining fertility |
|  |  | 3.Sorghum | 10 | 6 | 4 | 80 | 20 | D | Declining fertility |
|  |  | 4. Millet | 10 | 0 | 6 | 100 | 0 | D | Declining fertility |
|  |  | 5. Groundnut | 8 | 8 | 6 | 10 | 90 | I | Ready market |
|  |  | 6.Soybean | 5 | 9 | 6 | 10 | 90 | I | Ready market |
|  |  | 7.cowpea | 10 | 7 | 4 | 30 | 70 | I | Ready market |
|  |  | 8. Pigeon pea | 1 | 0 | 4 | 20 | 80 | I | Border crop |
|  | Zakoli | 1.Maize | 7 | 5 | 10 | 80 | 20 | I | Staple food crop |
|  |  | 2. Rice | 10 | 1 | 6 | 10 | 90 | D | Declining fertility |
|  |  | 3. Sorghum | 9 | 0 | 6 | 70 | 30 | D | Low yield |
|  |  | 4. Millet | 10 | 0 | 2 | 70 | 30 | I | Staple food crop |
|  |  | 5.Groundnut | 7 | 9 | 6 | 30 | 70 | I | Women livelihood |
|  |  | 6.Soybean | 5 | 10 | 10 | 10 | 90 | I | Easy to produce |
|  |  | 7.Cowpea | 7 | 3 | 10 | 10 | 90 | D | Pests/diseases |
|  |  | 8. Pigeon pea | 10 | 0 | 4 | 60 | 40 | D | Pests/diseases |
|  |  | 9. Bambara groundnut | 10 | 0 | 0 | 80 | 20 | D | Pests/diseases |

**Annex 2c: Community involvement, relative importance and trends in production of major livestock types in West Gonja and Savelugu/Nanton districts in Northern Region**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| District | Community | Livestock | Involvement (1-10) | | | Relative importance  (1-100) | | Trend  (I/D/S) | Reason |
| West |  |  | Men | Women | Youths | Food | Cash |  |  |
| Gonja | Sori No. 1 | Sheep | 4 | 6 | 10 | 5 | 95 | I | Source of income |
|  |  | Goats | 4 | 5 | 8 | 5 | 95 | I | Income/ceremony |
|  |  | Poultry | 10 | 7 | 10 | 10 | 90 | I | Home use/income |
|  |  | Cattle | 10 | 2 | 3 | 0 | 100 | D | Increase in theft |
|  |  | Dogs | 0 | 0 | 10 | 10 | 90 | S | Few people rear |
|  |  | Pigs | 0 | 3 | 7 | 5 | 95 | S | Resist diseases |
|  |  |  |  |  |  |  |  |  |  |
|  | Jonokponto | Sheep | 8 | 8 | 5 | 10 | 90 | I | Source of income |
|  |  | Goat | 8 | 7 | 5 | 10 | 90 | I | Source of income |
|  |  | Cattle | 1 | 2 | 1 | 0 | 100 | D | Poor kraals |
|  |  | Poultry | 10 | 9 | 10 | 30 | 70 | D | Diseases |
|  |  |  |  |  |  |  |  |  |  |
|  | Damongo | Sheep | 7 | 5 | 1 | 10 | 90 | I | Source of income |
|  | Zongo | Goat | 8 | 7 | 10 | 10 | 90 | I | Source of income |
|  |  | Poultry | 9 | 8 | 10 | 40 | 60 | I | Source of income |
|  |  | Cattle | 4 | 0 | 2 | 0 | 100 | D | Poor kraal/theft |
|  |  |  |  |  |  |  |  |  |  |
|  | Frafra No.4 | Cattle | 10 | 0 | 1 | 10 | 90 | D | Theft |
|  |  | Sheep | 8 | 2 | 4 | 10 | 90 | I | Income/ceremony |
|  |  | Goat | 6 | 4 | 3 | 10 | 90 | I | Income/ceremony |
|  |  |  |  |  |  |  |  |  |  |
| Savelugu/ | Duko | Cattle | 3 | 0 | 0 | 0 | 100 | D | Increased theft |
| Nanton |  | Poultry | 10 | 8 | 5 | 50 | 50 | I | For rituals/food |
|  |  | Sheep | 10 | 4 | 1 | 10 | 90 | I | Festivals/rituals |
|  |  | Goat | 10 | 4 | 1 | 10 | 90 | I | Paying bride price |
|  |  |  |  |  |  |  |  |  |  |
|  | Manguli | Goat | 0 | 3 | 10 | 5 | 95 | I | Source of income |
|  |  | Sheep | 0 | 6 | 10 | 5 | 95 | I | Source of income |
|  |  | Poultry | 0 | 4 | 6 | 10 | 90 | I | Source of income |
|  |  |  |  |  |  |  |  |  |  |
|  | Jana | Poultry | 1 | 7 | 1 | 60 | 40 | I | For sale |
|  |  | Cattle | 5 | 0 | 1 | 5 | 95 | I | For consumption |
|  |  | Sheep | 0 | 5 | 8 | 5 | 95 | I | Good price |
|  |  | Goats | 10 | 6 | 8 | 0 | 100 | I | Good price |

I = Increasing, S = Static, D = Decreasing

**Annex 2d: Community involvement, relative importance and trends in the production of Livestock in Tolon/Kumbungu and Yendi districts in Northern Region**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **District** | **Community** | **Livestock** | **Involvement (1-10)** | | | **Relative importance (1-100)** | | **Trend**  **(I/D/S)** | **Reason** |
|  |  |  | **Men** | **Women** | **Youths** | **Food** | **Cash** |  |  |
| Tolon/ | Dundo | 1.Cattle | 8 | 0 | 4 | 0 | 100 | S | Source of income |
| Kunbumgu |  | 2.Sheep | 9 | 0 | 6 | 10 | 90 | I | Income/ceremony |
|  |  | 3. Goats | 1 | 0 | 8 | 20 | 80 | I | Income/ceremony |
|  |  | 4. Poultry | 10 | 0 | 8 | 60 | 40 | I | Food/income |
|  |  |  |  |  |  |  |  |  |  |
|  | Kpachi | 1.Cattle | 10 | 0 | 5 | 10 | 90 | I | Source of income |
|  |  | 2.Sheep | 8 | 0 | 8 | 10 | 90 | I | Source of income |
|  |  | 3.Goats | 8 | 0 | 7 | 10 | 90 | I | Source of income |
|  |  | 4. Poultry | 7 | 0 | 7 | 20 | 80 | I | Food/income |
|  |  |  |  |  |  |  |  |  |  |
|  | Tingoli | 1.Sheep | 8 | 2 | 0 | 20 | 80 | I | Source of income |
|  |  | 2.Goat | 8 | 2 | 0 | 20 | 80 | I | Source of income |
|  |  | 3.Poultry | 6 | 3 | 0 | 50 | 50 | I | Food/income |
|  |  |  |  |  |  |  |  |  |  |
|  | Zugu | 1.Sheep | 6 | 0 | 0 | 10 | 90 | I | Source of income |
|  |  | 2.Cattle | 9 | 0 | 0 | 10 | 90 | I | Source of income |
|  |  | 3. Goat | 6 | 0 | 0 | 10 | 90 | I | Source of income |
|  |  | 4. Poultry | 10 | 0 | 0 | 60 | 40 | I | Food/income |
|  |  |  |  |  |  |  |  |  |  |
|  | Sabegu | 1.Cattle | 10 | 0 | 4 | 10 | 90 | I | Savings |
|  |  | 2.Sheep | 8 | 0 | 6 | 10 | 90 | I | Savings |
|  |  | 3.Goat | 8 | 0 | 8 | 10 | 90 | I | Savings |
|  |  | 4. Poultry | 7 | 0 | 8 | 20 | 80 | I | Food/savings |
|  |  |  |  |  |  |  |  |  |  |
| Yendi | Zang | 1.Cattle | 10 | 0 | 4 | 10 | 90 | I | Livelihood improvement. |
|  |  | 2.Sheep | 9 | 2 | 6 | 10 | 90 | I | Livelihood improvement. |
|  |  | 3.Goat | 9 | 2 | 6 | 10 | 90 | I | Livelihood improvement. |
|  |  | 4.Poultry | 8 | 3 | 4 | 80 | 20 | I | Livelihood improvement. |
|  |  |  |  |  |  |  |  |  |  |
|  | Zakoli | 1.Cattle | 7 | 0 | 8 | 30 | 70 | I | Savings |
|  |  | 2. Sheep | 6 | 0 | 10 | 40 | 60 | I | Savings |
|  |  | 3.Goat | 8 | 0 | 10 | 50 | 50 | I | Savings |
|  |  | 4. Poultry | 7 | 0 | 10 | 70 | 30 | D | Diseases |

I = Increasing, S = Static, D = Decreasing

**Annex 3a: Community involvement and trends in the processing and marketing of major crops grown in West Gonja and Savelugu /Nanton district in Northern Region**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **District** | **Community** | **Crops** | **Processing** | | **Marketing** | |
|  |  |  | Involvement (1-10) | Trends and reason | Involvement (1-10) | Trends and reasons |
| West | Sori No.1 | 1.Cowpea | 7 | S, many uses | 6 | Ready market |
| Gonja |  | 2.Groundnut | 8 | S, used for cakes | 7 | Good market price |
|  |  | 3. Bambara groundnut | 5 | S, low harvest | 5 | Low yield |
|  |  | 4.Maize | 8 | S, many use | 8 | Ready market |
|  |  | 5.Sorghum | 4 | S, low yield | 4 | Low yields |
|  |  | 6.Rice | 7 | S, children prefer | 6 | Good market price |
|  |  |  |  |  |  |  |
|  | Jonokponto | 1.Soybean | 4 | D, low produce | 8 | I, ready market |
|  |  | 2. Bambara groundnut | 7 | I, easy to process | 5 | S, many uses |
|  |  | 3. Groundnut | 8 | I, ready market | 7 | I, high price |
|  |  | 4. Maize | 9 | I, ready market | 9 | I, ready market |
|  |  | 5. Millet | 4 | D, low produce | 4 | D, domestic use |
|  |  |  |  |  |  |  |
|  | Damongo | 1.Groundnut | 8 | I, several forms | 8 | I, good price |
|  | Zongo | 2. Cowpea | 7 | S, low produce | 7 | I, good price |
|  |  | 3. Soybean | 4 | D, lack skills | 4 | I, ready market |
|  |  | 4. Bambara groundnut | 6 | D, lack skills | 5 | D, low produce |
|  |  | 5. Maize | 9 | I, ready market | 8 | I, ready market |
|  |  | 6. Millet | 6 | D, low produce | 5 | D, low produce |
|  |  | 7. Sorghum | 4 | D, low produce | 6 | D, low produce |
|  |  |  |  |  |  |  |
| Savelugu/ | Duko | 1.Maize | 7 | I, ready market | 7 | I, ready market |
| Nanton |  | 2. Millet | 4 | I, low produce | 4 | I, but small produce |
|  |  | 3. Rice | 0 | S, no machinery |  |  |
|  |  | 4. Groundnut | 7 | I, ready market | 8 | I, good market |
|  |  | 5. Cowpea | 4 | I, but limited uses | 4 | I, pest damage |
|  |  | 6. Soybean | 8 | I, many uses | 7 | I, good market |
|  |  |  |  |  |  |  |
|  | Manguli | 1.Maize | 4 | D, low patronage | 2 | I, good market price |
|  |  | 2. Sorghum | 3 |  | 3 | S, domestic use |
|  |  | 3. Rice | 0 | I, has many uses | 8 | I, ready market |
|  |  | 4. Cowpea | 5 | S, limited uses | 6 | D, small produce |
|  |  | 5. Soybean | 2 | I, ready market | 4 | I, ready market |
|  |  | 6.Bambara groundnut | 5 | D, lack knowledge | 4 | D, small produce |
|  |  |  |  |  |  |  |
|  | Jana | 1.Maize | 8 | I, easy to process | 60 | I, ready market |
|  |  | 2. Sorghum | 5 | I, source of income | 20 | D, low produce |
|  |  | 3. Rice | 5 | I, easy to process | 60 | I, good price |
|  |  | 4. Millet | 6 | I, high patronage | 30 | D, low produce |
|  |  | 5. Groundnut | 7 | D, domestic use | 70 | I, good price |
|  |  | 6. Cowpea | 6 | D, high value crop | 80 | I, good price |

I = Increasing, S = Static, D = Decreasing

**Annex 3b: Community involvement and trends in the processing and marketing of major crops grown in Tolon/Kunbumgu and Yendi districts in Northern Region**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **District** | **Community** | **Crops** | **Processing** | | **Marketing** | |
|  |  |  | **Involvement (1-10)** | **Trends and reason** | **Involvement (1-10)** | **Trends and reasons** |
| Tolon/ | Dundo | 1.Maize | 6 | I, rise in population | 6 | I, youths sell |
| Kunbumgu |  | 2. Rice | 8 | I, ready market | 8 | I, youths sell |
|  |  | 3. Sorghum | 6 | I, staple food | 9 | I, youths sell |
|  |  | 4.Groundnut | 8 | I, many forms | 8 | I, ready market |
|  |  | 5.Soybean | 8 | I, increased produc. | 9 | I, commercial crop |
|  |  | 6. Cowpea | 8 | I, many forms | 10 | I, ready market |
|  |  |  |  |  |  |  |
|  | Tingoli | 1.Maize | 5 | I, ready market | 6 | I, youths sell |
|  |  | 2. Rice | 8 | I, ready market | 8 | I, women sell |
|  |  | 3. Groundnut | 7 | I, ready market | 2 | I, source of income |
|  |  | 4. Soybean | 0 | Lack skills | 10 | I, ready market |
|  |  | 5. Cowpea | 0 | Lack skills | 3 | I, ready market |
|  |  |  |  |  |  |  |
|  | Zugu | 1.Rice | 7 | I, women process | - | - |
|  |  | 2. Millet | 4 | I, women process | - | - |
|  |  | 3. Soybean | 2 | S, women process | - | - |
|  |  | 4.Groundnut | 7 | I, women process | - | - |
|  |  |  |  |  |  |  |
|  | Sabegu | 1.Sorghum | 4 | I, staple food | 5 | I, |
|  |  | 2. Maize | 8 | I, staple food | 6 | I, |
|  |  | 3. Rice | 8 | I, women process | 9 | I, regular market |
|  |  | 4. Groundnut | 7 | I, women process | 9 | I, ready market |
|  |  | 5. Soybean | 2 | I, more forms | 1 | I, high value |
|  |  |  |  |  |  |  |
| Yendi | Zang | 1.Sorghum | 5 | I, women process |  | No local market |
|  |  | 2. Maize | 9 | I, women process |  |  |
|  |  | 3.Groundnut | 9 | I, women process |  |  |
|  |  | 4. Soybean | 9 | I, ready market |  |  |
|  |  |  |  |  |  |  |
|  | Zakoli | 1.Sorghum | 6 | I, youths involved | 8 | I, youths sell |
|  |  | 2. Maize | - | - | 9 | I, men and women |
|  |  | 3. Rice | 7 | I, women and youth | - | - |
|  |  | 4. Millet | - | - | 9 | I, men and youth |
|  |  | 5. Groundnut | 6 | I, women | 8 | I, all in community |
|  |  | 6. Soybean | 6 | I, many forms | 9 | I, source of income |

I = Increasing, S = Static, D = Decreasing

**Annex 3c: Community involvement and trends in the processing and marketing of livestock in West Gonja and Savelugu/Nanton districts in Northern Region**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **District** | **Community** | **Livestock** | **Processing** | | **Marketing** | |
|  |  |  | **Involvement**  **(1-10)** | **Trends and reason** | **Involvement**  **(1-10)** | **Trends and reasons** |
| West | Sori No. 1 | Goat | 5 | S, Do not process | 9 | S, Income for farming |
| Gonja |  | Cattle | 2 | S, Do not process | 9 | S, Income for farming |
|  |  | Poultry | 7 | S, Home use | 10 | S, Income for farming |
|  |  | Pigs | 3 | S, Do not process | 8 | S, Income for farming |
|  |  | Sheep | 6 | S, Funeral/ ceremony | 9 | S, Income for farming |
|  |  | Dog | 0 |  | 1 | S, Periodic market |
|  |  |  |  |  |  |  |
|  | Jonokponto | Goat | 6 | S, low patronage | 6 | I, good market price |
|  |  | Sheep | 7 | I, funerals/ceremony | 7 | I, good market price |
|  |  | Cattle | 4 | D, expensive | 7 | I, good market price |
|  |  | Poultry | 9 | I, many processing | 8 | I, ready market |
|  |  |  |  |  |  |  |
|  | Damongo | Goat | 3 | D, low patronage | 4 | D, low patronage |
|  | Zongo | Sheep | 4 | D, low patronage | 3 | D, low patronage |
|  |  | Poultry | 8 | I, easy to process | 8 | I , ready market |
|  |  |  |  |  |  |  |
| Savelugu/ | Duko | Goat | 40 | I, disease reduce production | 8 | I, good price |
| Nanton |  | Sheep | 3 | I, disease reduce production | 4 | S, low patronage |
|  |  | Poultry | 8 | I, easy to process | 9 | I, good patronage |
|  |  |  |  |  |  |  |
|  | Manguli | Poultry | 7 | I, ready market | 4 | D, disease increase |
|  |  | Sheep | 8 | I, ceremonies | 6 | I, ready market |
|  |  | Goat | 6 | I, ready market | 8 | I, ready market |
|  |  |  |  |  |  |  |
|  | Jana | Poultry | 8 | S, low production | 6 | I, ready market |
|  |  | Sheep | 7 | I, high cost to consumers | 4 | I, ceremonies |
|  |  | Goats | 6 | I, high cost to consumers | 5 | I, good price |
|  |  | Cattle | 0 | - | 2 | I, good price |

I = Increasing, S = Static, D = Decreasing

**Annex 4: Crop and livestock census and ranking by gender in Northern Region**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **District** | **Community** | **Sori No.1** | | | **Jonokponto** | | | **Damongo Zongo** | | |
| **West** |  |  |  |  | **Ranking by gender** | | | |  |  |
| **Gonja** | **Cereals/Legumes** | **M** | **W** | **Y** | **M** | **W** | **Y** | **M** | **W** | **Y** |
|  | 1.Maize | 1st | 1st | 1st | 1st | 1st | 1st | 1st | 1st | 1st |
|  | 2.Sorghum | 2nd | 3rd | 2nd | 2nd | 5th | 2nd | 2nd | - | 3rd |
|  | 3. Rice | 6th | 4th | 3rd | 3rd | - | 4th | - | - | - |
|  | 4. Millet | - | - | - | - | 6th | 3rd | 3rd | 2nd | 2nd |
|  | 1. Groundnut | 3rd | 4th | 2nd | 1st | 1st | 1st | 1st | 1st | 1st |
|  | 2.Cowpea | 4th | 2nd | 1st | 2nd | 4th | 3rd | 2nd | - | 2nd |
|  | 3.Soybean | 7th | - | 3rd | - | 3rd | 2nd | 3rd | 2nd | 3rd |
|  | 4.Bambara groundnut | 7th | 6th | 4th | 3rd | 7th | 5th | 4th | 3rd | 4th |
|  | **Livestock** |  |  |  |  |  |  |  |  |  |
|  | 1.Goat | 2nd | 2nd | 2nd | 2nd | 1st | 2nd | 2nd | 2nd | 2nd |
|  | 2.Sheep | 3rd | 1st | 6th | 3rd | 3rd | 3rd | 3rd | 3rd | 3rd |
|  | 3.Poultry | 1st | 3rd | 1st | 1st | 2nd | 1st | 1st | 1st | 1st |
|  | 4.Cattle | 4th | 5th | 5th | 4th | - | 4th | 4th | 4th | 4th |
|  | 5.Pig | - | 4th | 3rd | - | - | - |  |  |  |
|  | **Community** | **Doku** | | | **Manguli** | | | **Jana** | | |
| **Savelugu/** | **Cereals/Legumes** | **M** | **W** | **Y** | **M** | **W** | **Y** | **M** | **W** | **Y** |
| **Nanton** | Maize | 1st | 3rd | 2nd | 2nd | 2nd | 2nd | 1st | 1st | 1st |
|  | Sorghum | 3rd | - | 3rd | 3rd | 5th | - | 3rd | 6th | 3rd |
|  | Rice | 2nd | 1st | 1st | 1st | 1st | 1st | 2nd | - | 2nd |
|  | Groundnut | 3rd | 4th | 3rd | 1st | 2nd | 2nd | 1st | 2nd | 1st |
|  | Cowpea | 2nd | 5th | 1st | - | - | - | - | 2nd | 3rd |
|  | Soybean | 1st | 2nd | 2nd | - | 2nd | 1st | 2nd | 2nd | 2nd |
|  | **Livestock** |  |  |  |  |  |  |  |  |  |
|  | Goat | 3rd | 3rd | 3rd | 3rd | 3rd | 3rd | 3rd | 2nd | 2nd |
|  | Sheep | 2nd | 2nd | 2nd | 1st | 1st | 2nd | 2nd | 3rd | 3rd |
|  | Poultry | 1st | 1st | 1st | 2nd | 2nd | 1st | 1st | 1st | 1st |
|  | Cattle | 4th | - | 4th | - | - | - | 4th | - | 4th |
|  |  | **Tingoli** | | | **Zugu** | | | **Zakoli (Yendi district)** | | |
| **Tolon/** | **Cereals/Legumes** | **M** | **W** | **Y** | **M** | **W** | **Y** | **M** | **W** | **Y** |
| **Kumbungu** | 1.Maize | 1st | 1st | 1st | 1st | 1st | 1st | 1st | 1st | 1st |
|  | 2.Sorghum | 3rd | 4th | 3rd | 3rd | - | 3rd | 3rd | - | 2nd |
|  | 3. Rice | 2nd | 2nd | 2nd | 2nd | 2nd | 2nd | 2nd | 2nd | 4th |
|  | 4. Millet | 4th | 3rd | 4th | 4th | - | 4th | 4th | - | 3rd |
|  | 1. Groundnut | 1st | 1st | 1st | 1st | 1st | 1st | 4th | 2nd | 2nd |
|  | 2.Cowpea | 2nd | 3rd | 3rd | 4th | 3rd | 3rd | 1st | 3rd | 3rd |
|  | 3.Soybean | 3rd | 2nd | 2nd | 2nd | 2nd | 2nd | 2nd | 1st | 2nd |
|  | 4.Bambara groundnut | 4th | 4th | 4th | 3rd | 4th | 4th | 3rd | - |  |
|  | 5.Pigeon pea | 5th | 5th | 5th | 5th | - | - | - | - | 4th |
|  | **Livestock** |  |  |  |  |  |  |  |  |  |
|  | 1.Goat | 2nd | - | 2nd | 3rd | - | 3rd | 2nd | 2nd | 2nd |
|  | 2.Sheep | 1st | - | 1st | 2nd | - | 2nd | 1st | 1st | 1st |
|  | 3.Poultry | 1st | - | 3rd | 1st | - | 1st | 4th | 3rd | 3rd |
|  | 4.Cattle | 3rd | - | 5th | 4th | - | 4th | 3rd | - | 4th |

M = Men, W = Women, Y = Youths

**Annex 5: Problem census and prioritization by gender and farmer coping strategies in Northern Region**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Community** | **Problem** | **Rank** | | | **Coping strategy/advantage**  **Disadvantages/%involved** | **Trend**  **(I/D/S)** |
| Dundo/ Kpachi/ | **Crop Production** | **M** | **W** | **Y** |  |  |
| Zang | 1.high cost of fertilizers |  | 2nd |  |  |  |
|  | 2. Weeding costly |  | 5th |  |  |  |
|  | 3. High cost of land preparation |  | 1st |  |  |  |
|  | 4. No improved Seeds |  | 3rd |  |  |  |
|  | 5. Inadequate land |  | 4th |  |  |  |
|  | 6. Low soil fertility |  |  | 2nd | * 1. Use chemical fertilizer, increases yield, 100% | I |
|  |  |  |  |  | * 1. Animal manure, increase yield, increase weeds, 40% | I |
|  | 7. No credit |  |  | 5th | 7.1 Personal savings, 80% | I |
|  | 8. Erratic rainfall |  |  | 1st | * 1. Early maturing varieties, increase yield, 40% | I |
|  |  |  |  |  | * 1. Drought tolerant varieties, difficult to get seeds, 60% | I |
|  |  |  |  |  | * 1. Earth bunds, conserves water, increase gullies, 40% | S |
|  | 9. *Striga* infestation |  |  | 3rd | * 1. Legume + cereal intercrop., control *Striga*, 60% | I |
|  | 10. Soil acidity |  |  | 4th |  |  |
| Tingoli/Zugu | **Crop Production** |  |  |  |  |  |
|  | 1.Weed infestation | 2nd | 6th | 5th |  |  |
|  | 2.Pesticides costly |  | 5th |  |  |  |
|  | 3.Fertilizer costly |  | 2nd |  |  |  |
|  | 4.High cost of seeds |  | 4th | 4th |  |  |
|  | 5.*Striga* infestation | 3rd | 4th |  |  |  |
|  | 6.Land scarcity |  | 3rd |  |  |  |
|  | 7. Low soil fertility | 1st |  | 2nd | 7.1 Use chemical fertilizer, increases yield, 100% | I |
|  |  |  |  |  | 7.2 Animal droppings, increase yield, difficult to transport, 30% | I |
|  | 8. Inadequate tractor | 2nd |  | 1st |  |  |
|  | 9. Inadequate credit |  |  | 3rd |  |  |
| Sabegu/Aibos | **Livestock** |  |  |  |  |  |
|  | 1.Ticks and worms | 1st |  | 1st |  |  |
|  | 2. Inadequate vet./drugs | 3rd |  | 2nd |  |  |
|  | 3. Anthrax/swelling | 2nd |  | 5th |  |  |
|  | 4. Diarrhea/pneumonia | 1st |  |  |  |  |
|  | 5. Newcastle | 4th |  |  |  |  |
|  | **Marketing/processing** |  |  |  |  |  |
|  | 1.Low prices | 1st | 1st | 1st |  |  |
|  | 2.Low demand | 2nd |  |  |  |  |
|  | 3. Inadequate transport | 3rd | 2nd |  |  |  |
|  | 4. Lack of grinding mills |  |  |  |  |  |
|  | 5. Lack of shellers/dryers |  |  |  |  |  |
|  | 6. Lack of local market |  |  |  |  |  |

M = Men, W = Women, Y = Youths

**Annex 6: Biophysical characteristics of project communities in Upper East Region**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **District** | **Community** | **Population/ settlement** | **Commun. hierarchy**  **/ethnic groups** | **Agro-ecology/**  **Vegetation** | **Soils** | **No. present** | | |
| **M** | **F** | **Total** |
| Talensi/ | Sakote | 60% F, 40% M/scattered | Chief, queen mother, assemblyman | Sudan savanna/grassland | Sandy loam/gravel | 39 | 25 | 64 |
| Nabdam | Winkogo | 6,860 | Chief, assemblyman | Sudan savanna/grassland | Sandy loam/gravel | 29 | 22 | 51 |
|  | Balungu | 1, 988 (60% F, 40% M) | Chief , assemblyman | Sudan savanna/grassland | Sandy loam/gravel | 55 | 54 | 109 |
|  | Baare | 40% M and 60% F | Chief, assemblyman | Sudan savanna/grassland | Sandy loam/gravel | 45 | 24 | 69 |
|  | Sheaga | NA | Chief, assemblyman | Sudan savanna/grassland | Sandy loam/gravel | 44 | 46 | 90 |
| Bongo | Gowrie | 130 households | Chief, assemblyman | Sudan savanna/grassland | Sandy loam/gravel | 34 | 33 | 67 |
|  | Beo Moshe. | 539 (322 F, 217 M) | Chief, assemblyman | Sudan savanna/grassland | Sandy loam/gravel | 33 | 30 | 63 |
|  | Soe Yidongo | 1500 (30 M, 70% F) | Chief, assemblyman | Sudan savanna/grassland | Sandy loam/gravel | 41 | 34 | 75 |
|  | Namoo Abass. | NA | Chief, assemblyman | Sudan savanna/grassland | Sandy loam/gravel | 21 | 33 | 54 |
|  | Dua | 539 (322 F, 217 M) | Chief, assemblyman | Sudan savanna/grassland | Sandy loam/gravel | 58 | 95 | 153 |
| Bawku  West | Binaba (22 km from District capital (DC) | 7,815 (3750 M, 3840 F | Chief, sub chief, headmen, assembly/ Kusasi, Busasi, Fulani Moshie | Sudan savanna/grassland | Sandy loam/gravel | 63 | 133 | 199 |
|  | Tilli (10 km from DC) | 1200 | Chief, sub-chief, Tindaana, Elders/ Kusasi, Fulani, Hausa, Zabarrma | Sudan savanna/grassland | Sandy loam/gravel | 64 | 36 | 100 |
|  | Tanga (5km from DC) | 2815 (1252 M, 1563 F) | Kusasi, Mamprusi, Moshie, Frafra, Fulani | Sudan savanna/grassland | Sandy loam/gravel | 35 | 33 | 68 |
|  | Yarigu (6 km from DC) | 3289 (1332 M, 1957 F) | Chief, sub-chief, queen mother, assembly/ Kusasi, Moshie | Sudan savanna/grassland | Sandy loam/gravel | 89 | 45 | 134 |
|  | Googo (12 km from DC) | 1449 (687 M, 762 F) | Sub-chief, Elders, Tindana, assembly/Kusasi | Sudan savanna/grassland | Sandy loam/gravel | 83 | 75 | 158 |
| Bawku | Binduri | NA | NA | Sudan savanna/grassland | Sandy loam/gravel | 78 | 63 | 141 |
| Municip. | Nayorko-1(5 km from DC) | 1233 | Sub-chief, elders, Tindana, assembly/ Bisa Kusasi,Moshie, Fulani | Sudan savanna/grassland | Sandy loam/gravel | 45 | 98 | 143 |
|  | Ninkogo (8 km from DC) | 673 | Chief, sub-chief, elders, assembly | Sudan savanna/grassland | Sandy loam/gravel | 69 | 118 | 187 |
|  | Kaade (18 km from DC) | 1105 | Chief, sub-chief, elders, assembly/Kusasi | Sudan savanna/grassland | Sandy loam/gravel | 45 | 41 | 86 |
|  | Nafkolga (28 km from DC) | 505 | Sub-chief, elders, Tindana/Kusasi, Bisa | Sudan savanna/grassland | Sandy loam/gravel | 45 | 39 | 84 |
|  |  |  |  |  | Total | 1015 | 1077 | 2092 |

**Annex 7a: Community involvement, relative importance and trends in the production of major crops grown**

**in Talensi/Nabdam and Bongo districts in Upper East Region**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **District** | **Community** | **Crops grown** | **Involvement (1-10)** | | | **Relative importance(1-100)** | | **Trend**  **(I/D/S)** | **Reason** |
| Talensi/ |  |  | **Men** | **Women** | **Youths** | **Food** | **Cash** |  |  |
| Nabdam | Sakote and | 1.Early/late millet | 2 | 2 | 2 | 90 | 10 | D | Low soil fert./pests/rains |
|  | Bolungu | 2.Sorghum | 2 | 4 | 4 | 50 | 50 | D | Declining fert./rains |
|  |  | 3.Maize | 2 | 4 | 2 | 40 | 60 | I | New crop/fertz.inputs |
|  |  | 4.Rice | 6 | 6 | 6 | 20 | 80 | D | Declining fert/rains |
|  |  | 1.Groundnut | 8 | 4 | 4 | 40 | 60 | D | Dise., fert., loc. vars. |
|  |  | 2.Cowpea | 6 | 6 | 6 | 40 | 60 | D | Pests, local vars.,fert. |
|  |  | 3. Bambaranut | 4 | 6 | 4 | 40 | 60 | D | As above |
|  |  | 4. Soybean | 10 | 10 | 10 | 10 | 90 | D | As above |
|  | Winkogo and | 1.Rice | 6 | 6 | 4 | 50 | 50 | D | Declining fert./rains |
|  | Sheaga | 2.Early /late millet | 2 | 2 | 2 | 90 | 10 | D | As above and pests |
|  |  | 3.Sorghum | 2 | 2 | 2 | 50 | 50 | S | As above |
|  |  | 4.Maize | 2 | 6 | 2 | 40 | 60 | I | High yield/market |
|  |  | 1.Groundnut | 8 | 4 | 6 | 40 | 60 | D | Disease., fert., loc.vars. |
|  |  | 2.Cowpea | 6 | 6 | 6 | 60 | 40 | D | As above and pests |
|  |  | 3. Bambara groundnut | 4 | 6 | 6 | 60 | 40 | D | As above |
|  |  | 4. Soybean | 8 | 4 | 6 | 10 | 90 | D | Lack processing. Skills |
|  | Baare | 1.Rice | 6 | 6 | 6 | 20 | 80 | D | Declining fert./rains |
|  |  | 2.Early/late millet | 2 | 2 | 2 | 90 | 10 | D | As above and pests |
|  |  | 3.Sorghum | 2 | 4 | 4 | 50 | 50 | D | As above |
|  |  | 4.Maize | 2 | 4 | 2 | 40 | 60 | I | New crop/needs fert. |
|  |  | 1.Groundnut | 8 | 4 | 4 | 40 | 60 | D | Dise., fert., loc.vars. |
|  |  | 2.Cowpea | 6 | 6 | 6 | 40 | 60 | D | Pests, fert., loc.vars. |
|  |  | 3. Bambara groundnut | 4 | 6 | 4 | 40 | 60 | D | Pests, fert., loc.vars. |
|  |  | 4. Soybean | 10 | 10 | 10 | 10 | 90 | D | Disease., fert., loc.vars. |
| Bongo | Goweri and | 1.Rice | 4 | 6 | 2 | 50 | 50 | D | Declining fert./rains |
|  | Namoo Abb. | 2.Early/late millet | 2 | 2 | 2 | 90 | 10 | D | As above and pests |
|  |  | 3.Sorghum | 2 | 2 | 2 | 50 | 50 | D | As above |
|  |  | 4.Maize | 2 | 6 | 2 | 60 | 40 | I | High yield/unit area |
|  |  | 1.Groundnut | 4 | 2 | 6 | 50 | 50 | D | Dise., fert., loc.vars. |
|  |  | 2.Cowpea | 6 | 6 | 6 | 70 | 30 | D | Pests, fert., loc.vars. |
|  |  | 3. Bambara groundnut | 4 | 6 | 6 | 80 | 20 | D | Pests, fert., loc.vars. |
|  |  | 4. Soybean | 8 | 4 | 6 | 10 | 90 | D | Lack process. Skills |
|  | Beo M. and | 1.Rice | 4 | 6 | 2 | 80 | 20 | D | Lack impro. Varieties |
|  | Dua | 2.Early/late millet | 2 | 2 | 2 | 100 | 0 | D | As above/low fert. |
|  |  | 3.Sorghum | 2 | 2 | 2 | 90 | 10 | D | As above |
|  |  | 4.Maize | 8 | 10 | 6 | 80 | 20 | I | High yield/needs fert. |
|  |  | 1.Groundnut | 2 | 4 | 2 | 90 | 10 | D | Dise., fert., loc.vars. |
|  |  | 2.Cowpea | 6 | 2 | 4 | 90 | 10 | D | Pests, fert., loc.vars. |
|  |  | 3. Bambara groundnut | 4 | 6 | 6 | 80 | 20 | D | Pests, fert., loc.vars. |
|  |  | 4. Soybean | 10 | 6 | 6 | 10 | 90 | D | Lack process. Skills |
|  | Soe Yidongo | 1.Rice | 6 | 8 | 8 | 40 | 60 | D | Declining fert./rains |
|  |  | 2.Early millet/late | 2 | 2 | 2 | 100 | 0 | D | As above/pests |
|  |  | 3.Sorghum | 2 | 4 | 4 | 50 | 50 | D | Declining fert./rains |
|  |  | 4.Maize | 4 | 6 | 4 | 40 | 60 | I | New crop/high yield |
|  |  | 1.Groundnut | 8 | 4 | 4 | 50 | 50 | D | Dise., fert., loc.vars. |
|  |  | 2.Cowpea | 6 | 6 | 6 | 70 | 30 | D | Pests, fert., rains |
|  |  | 3Bambara groundnut | 4 | 6 | 4 | 80 | 20 | D | Dise., fert., loc.vars. |
|  |  | 4. Soybean | 10 | 10 | 10 | 10 | 90 | D | Dise., fert., loc.vars. |

I = Increasing, S = Static, D = Decreasing

**Annex 7b: Community involvement, relative importance and trends in the production of major crops grown in Bawku West in Upper East Region**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **District** | **Community** | **Crops grown** | **Involvement (1-10)** | | | **Relative importance**  **(1-100) (M/W/Y)** | | **Trend**  **(I/D/S)** | **Reason** |
|  |  |  | **Men** | **Women** | **Youths** | **Food** | **Cash** |  |  |
| Bawku | Binaba | 1.Maize | 6 | 6 | 2 | 70/70/50 | 30/30/50 | I | High yield/market |
| West |  | 2.Sorghum | 3 | 6 | 1 | 30/30/0 | 70/70/100 | D | *Striga*/poor yields |
|  |  | 3.Millet | 8 | 1 | 1 | 80/80/90 | 20/20/10 | D | Poor yields |
|  |  | 4.Rice | 2 | 5 | 5 | 30/30/40 | 70/70/60 | D | Inadequate rains/soils |
|  |  | 1.Cowpea | 2 | 6 | 2 | 60/60/20 | 40/40/100 | I | Food/Cash crop |
|  |  | 2. Soybean | 2 | 0 | 8 | 50/50/60 | 50/50/40 | I | High cash/nutrients |
|  |  | 3.Groundnut | 1 | 1 | 7 | 60/60/10 | 40/40/90 | D | Poor yields/rains/diseas. |
|  |  | 4. Bambara groundnut | 1 | 2 | 7 | 70/70/60 | 30/30/40 | I | Good yields |
|  |  | 5. Sesame | 0 | 0 | 10 | 0/50/0 | 0/50/0 | I | Good yield/soup |
|  |  | 6. *Neri* | 0 | 0 | 10 | 0/60/0 | 0/40/0 | D | Poor yields |
|  | Yarigu | 1.Maize | 10 | 2 | 10 | 90/20/50 | 10/80/50 | I | Ready market |
|  |  | 2.Sorghum | 10 | 0 | 5 | 90/0/1 | 10/0/99 | D | Late/inadequate rains |
|  |  | 3.Millet | 10 | 1 | 10 | 90/100/100 | 10/0/0 | D | Poor soil fertility |
|  |  | 4.Rice | 6 | 7 | 7 | 10/60/25 | 90/40/75 | S | Insufficient rains |
|  |  | 1.Cowpea | 10 | 6 | 10 | 20/20/10 | 80/80/90 | I | Many new uses |
|  |  | 2. Soybean | 4 | 7 | 10 | 0/60/1 | 100/40/99 | I | Good yields |
|  |  | 3.Groundnut | 5 | 6 | 5 | 20/80/3 | 80/20/97 | D | Late rains/poor soils |
|  |  | 4. Bambara groundnut | 8 | 0 | 0 | 30/0/0 | 70/0/0 | D | Many diseases |
|  | Tanga | 1.Maize | 10 | 2 | 10 | 80/60/50 | 20/40/50 | I | High yields |
|  |  | 2.Sorghum | 10 | 1 | 9 | 100/90/0 | 0/10/100 | D | Poor yield/rains |
|  |  | 3.Millet | 8 | 2 | 9 | 100/60/100 | 0/40/0 | S | Poor yields |
|  |  | 4.Rice | 7 | 6 | 5 | 10/30/10 | 90/70/90 | I | High market value |
|  |  | 1.Cowpea | 5 | 3 | 10 | 50/20/30 | 50/80/70 | I | High yielding |
|  |  | 2. Soybean | 8 | 7 | 10 | 20/20/10 | 80/80/90 | I | High cash value/nutrient |
|  |  | 3.Groundnut | 4 | 4 | 9 | 20/60/30 | 80/40/70 | D | Poor yields/diseases |
|  |  | 4. Bambara groundnut | 7 | 6 | 8 | 30/90/20 | 70/10/80 | D | Inadequate farmland |
|  | Googo | 1.Maize | 10 | 2 | 10 | 70/60/90 | 30/40/10 | I | Use fertiliz. /high yields |
|  |  | 2.Sorghum | 10 | 0 | 5 | 90/0/0 | 10/0/100 | D | Erratic rains/no bullock |
|  |  | 3.Millet | 10 | 3 | 10 | 100/80/100 | 0/20/0 | D | Poor/erratic rains |
|  |  | 4.Rice | 7 | 5 | 10 | 20/70/30 | 80/30/70 | S/I | High cost of operations |
|  |  | 1.Cowpea | 6 | 2 | 6 | 50/30/70 | 50/70/30 | S/I | Use local varieties/yields |
|  |  | 2. Soybean | 9 | 0 | 10 | 20/0/20 | 80/0/80 | I | No use of fertilizer |
|  |  | 3.Groundnut | 3 | 5 | 8 | 20/40/40 | 80/60/60 | D | Poor soil fertility/no vars |
|  |  | 4. Bambara groundnut | 4 | 5 | 5 | 10/60/90 | 90/40/10 | D | Low soil fertility/rains |
|  | Tilli | 1.Maize | 10 | 1 | 10 | 60/60/40 | 40/40/60 | I | High yields |
|  |  | 2.Sorghum | 10 | 1 | 4 | 30/70/4 | 7030/96 | D | Low yields |
|  |  | 3.Early millet | 10 | 1 | 9 | 50/90/90 | 50/10/10 | D | Maize replacing |
|  |  | 4. Late millet | 10 | 1 | 9 | 50/90/90 | 50/10/10 | D | Maize replacing |
|  |  | 5.Rice | 6 | 5 | 10 | 40/20/4 | 60/80/96 | I/D | Cash crop/high cost |
|  |  | 1.Cowpea | 10 | 2 | 7 | 20/20/20 | 80/80/80 | I | Improv. vars. Available |
|  |  | 2. Soybean | 8 | 3 | 7 | 10/20/3 | 90/80/97 | I | Cash crop |
|  |  | 3.Groundnut | 3 | 3 | 5 | 40/30/20 | 60/70/80 | D | Poor yields/no new seeds |
|  |  | 4. Bambara groundnut | 3 | 3 | 5 | 20/10/90 | 80/90/10 | D | Poor yield/no new seeds |

I = Increasing, S = Static, D = Decreasing, M= Men, W = Women, Y = Youths

**Annex 7c: Community involvement, relative importance and trends in the production of major crops grown in Bawku Municipal in Upper East Region**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **District** | **Community** | **Crops grown** | **Involvement (1-10)** | | | **Relative importance**  **(1-100) (M/W/Y)** | | **Trend**  **(I/D/S)** | **Reason** |
|  |  |  | **Men** | **Women** | **Youths** | **Food** | **Cash** |  |  |
| Bawku | Kaade | 1.Maize | 10 | 2 | 8 | 90/60/70 | 10/40/30 | S | Require fertile soils |
| Municipal |  | 2.Sorghum | 10 | 0 | 6 | 90/0/0 | 10/0/100 | D | Poor yield/*Striga* |
|  |  | 3.Millet | 10 | 1 | 10 | 90/90/90 | 10/10/10 | D | Poor yields/drought |
|  |  | 4. Rice | 10 | 4 | 5 | 20/70/30 | 80/30/70 | D | Poor soils/rains |
|  |  | 1.Cowpea | 6 | 3 | 5 | 30/60/50 | 70/40/50 | D | Pests//costly chemicals |
|  |  | 2. Soybean | 6 | 6 | 5 | 20/50/30 | 80/50/70 | I | High cash/nutritive |
|  |  | 3.Groundnut | 2 | 3 | 0 | 30/70/0 | 70/30/0 | D | Poor yields/rains/disease |
|  |  | 4. Bambara groundnutt | 4 | 6 | 5 | 10/70/30 | 90/30/70 | I | No adequate land |
|  | Nafkolga | 1.Maize | 10 | 1 | 10 | 80/20/90 | 20/80/10 | D | Low soil fertility |
|  |  | 2.Sorghum | 10 | 0 | 5 | 80/0/40 | 20/0/60 | D | Low soil fertility |
|  |  | 3.Millet | 10 | 1 | 10 | 80/10/80 | 20/90/20 | D | Downey mildew |
|  |  | 4. Rice | 7 | 5 | 7 | 20/40/20 | 80/60/80 | D | Poor soil fertility |
|  |  | 1.Cowpea | 10 | 2 | 3 | 50/40/30 | 50/60/70 | I | Timely spraying |
|  |  | 2. Soybean | 10 | 5 | 10 | 10/30/30 | 90/70/70 | I | Intercropped with maize |
|  |  | 3.Groundnut | 1 | 6 | 7 | 50/30/50 | 50/70/50 | D | Diseases |
|  |  | 4. Bambara groundnut | 2 | 7 | 3 | 70/60/80 | 30/40/20 | D | Poor yields |
|  | Nayoko | 1.Maize | 10 | 3 | 10 | 60/30/50 | 40/70/50 | I | High yields/use fertilizer |
|  |  | 2.Early millet | 10 | 3 | 10 | 80/30/50 | /2070/50 | D | Low yields/maize replac. |
|  |  | 3. Late millet | 10 | 0 | 0 | 60/0/0 | 40/0/0 |  |  |
|  |  | 4. Rice | 7 | 2 | 8 | 10/20/0 | 90/80/100 | D | Low soil fertility |
|  |  | 5. Sorghum | 10 | 0 | 5 | 20/0/40 | 80/0/60 |  | Replaced by maize |
|  |  | 1.Cowpea | 10 | 2 | 10 | 20/20/60 | 80/80/40 | D | Pests/low yields/rains |
|  |  | 2. Soybean | 10 | 2 | 8 | 40/30/80 | 60/70/20 | D/I | Low fertility/low input |
|  |  | 3.Groundnut | 3 | 5 | 1 | 20/40/60 | 80/60/40 | D | Poor yields/vars./rain |
|  |  | 4. Bambara groundnut | 6 | 2 | 10 | 40/70/80 | 60/30/20 | D | Poor rains/yields/vars. |
|  | Binduri | 1.Maize | 10 | 3 | 9 | 70/40/80 | 30/60/20 | I | High yields |
|  |  | 2.Early millet | 10 | 2 | 10 | 80/80/100 | 2020//0 | D | Maize replacing it |
|  |  | 3. Late millet | 10 | 0 | 0 | 90/0/0 | 10/0/0 | D |  |
|  |  | 4. Rice | 6 | 6 | 6 | 10/30/20 | 90/70/80 | D | Erratic rains |
|  |  | 5. Sorghum | 10 | 0 | 8 | 40/0/70 | 60/0/30 | D |  |
|  |  | 1.Cowpea | 10 | 2 | 10 | 90/10/50 | 10/90/50 | I | Poor yields |
|  |  | 2. Soybean | 10 | 6 | 8 | 20/10/20 | 80/90/80 | I | Low input/new varieties |
|  |  | 3.Groundnut | 3 | 4 | 2 | 10/30/20 | 90/70/80 | D | Low yields |
|  |  | 4. Bambara groundnut | 7 | 4 | 4 | 30/50/20 | 70/50/80 | I | Poor yields |
|  | Ninkogo | 1.Maize | 10 | 5 | 10 | 70/80/60 | 30/20/40 | I | Fertilizer available |
|  |  | 2.Sorghum | 10 | 0 | 10 | 70/0/10 | 30/0/90 | D |  |
|  |  | 3.Millet | 10 | 2 | 10 | 90/90/75 | 10/10/25 | D | Drought |
|  |  | 4. Rice | 5 | 3 | 3 | 10/20/40 | 90/80/60 | I | Heavy rainfall |
|  |  | 1.Cowpea | 10 | 8 | 10 | 10/10/15 | 90/90/85 | D | Diseases/pests |
|  |  | 2. Soybean | 10 | 3 | 10 | 0/10/20 | 100/90/80 | I | No chemicals required |
|  |  | 3.Groundnut | 2 | 3 | 3 | 10/20/10 | 90/80/90 | D | Diseases |
|  |  | 4. Bambara groundnut | 5 | 1 | 4 | 10/60/15 | 90/40/85 | D | No land for Bambara groundnut |

I = Increasing, S = Static, D = Decreasing, M = Men, W =Women, Y = Youths

**Annex 7d: Community involvement, relative importance and trends in the production of major livestock in Talensi/Nabdam and Bongo districts in Upper East Region**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **District** | **Community** | **Livestock** | **Involvement (1-10)** | | | **Relative importance**  **(1-100)** | | **Trend**  **(I/D/S)** | **Reason** |
| Talensi |  |  | **Men** | **Women** | **Youths** | **Food** | **Cash** |  |  |
| Nabdam | Sakote and | 1.Poultry\* | 2 | 5 | 40 | 30 | 70 | D | NCD, worms, mortality |
|  | Baare | 2. Cattle | 2 | 10 | 4 | 10 | 90 | D | Declining grazing land |
|  |  | 3. Sheep | 2 | 8 | 4 | 30 | 70 | D | As above, destroy crops |
|  |  | 4. Goat | 6 | 2 | 2 | 30 | 70 | D | As above |
|  |  | 5. Pig | 8 | 6 | 4 | 20 | 80 | D | High cost of feed/drugs |
|  |  | 6. Dog | 2 | 8 | 6 | 50 | 50 | D | High cost of food/rabies |
|  |  | 7.Donkey | 6 | 2 | 6 | 10 | 90 | D | Declining grazing land |
|  | Winkogo and | 1.Poultry | 2 | 2 | 2 | 20 | 80 | I | Dowry, rituals, festivals |
|  | Sheaga | 2. Cattle | 2 | 8 | 4 | 5 | 95 | D | Declining grazing land |
|  |  | 3. Sheep | 2 | 4 | 2 | 10 | 90 | D | Declining grazing land |
|  |  | 4. Goat | 2 | 2 | 2 | 10 | 90 | D | As above/destructive |
|  |  | 5. Pig | 2 | 4 | 2 | 10 | 90 | D | High cost of drugs/feed |
|  |  | 6. Dog | 2 | 6 | 4 | 50 | 50 | D | High cost of food/rabies |
|  |  | 7.Donkey | 2 | 2 | 2 | 0 | 100 | D | Declining grazing land |
|  | Balungu | 1.Poultry | 2 | 4 | 2 | 20 | 80 | S | NCD , worms, mortality |
|  |  | 2. Cattle | 2 | 10 | 4 | 10 | 90 | D | Declining grazing land |
|  |  | 3. Sheep | 2 | 2 | 4 | 10 | 90 | D | As above/destructive |
|  |  | 4. Goat | 2 | 2 | 2 | 20 | 80 | D | As above |
|  |  | 5. Pig | 8 | 6 | 4 | 20 | 80 | D | Poor housing/feed/drug |
|  |  | 6. Dog | 2 | 10 | 6 | 50 | 50 | D | High cost of food/rabies |
|  |  | 7.Donkey | 6 | 4 | 6 | 10 | 90 | D | Declining grazing land |
|  |  |  |  |  |  |  |  |  |  |
| Bongo | Gowrie and | 1.Poultry | 2 | 4 | 2 | 10 | 90 | I | NCD, worms, mortality |
|  | Beo Moshid. | 2. Cattle | 2 | 8 | 4 | 10 | 90 | D | Declining grazing land |
|  |  | 3. Sheep | 2 | 6 | 4 | 10 | 90 | D | As above/destructive |
|  |  | 4. Goat | 2 | 4 | 4 | 10 | 90 | D | As above |
|  |  | 5. Pig | 8 | 10 | 10 | 10 | 90 | D | Poor housing/feed/drugs |
|  |  | 6. Dog | 2 | 6 | 4 | 60 | 40 | D | High cost of food/rabies |
|  |  | 7.Donkey | 6 | 6 | 8 | 10 | 90 | D | Declining grazing land |
|  | Soe Yidongo | 1.Poultry | 2 | 8 | 4 | 30 | 70 | D | NCD, worms, mortality |
|  |  | 2. Cattle | 2 | 10 | 4 | 10 | 90 | D | Declining grazing land |
|  |  | 3. Sheep | 2 | 8 | 4 | 30 | 70 | D | As above/destructive |
|  |  | 4. Goat | 6 | 6 | 8 | 30 | 70 | D | As above |
|  |  | 5. Pig | 8 | 6 | 4 | 20 | 80 | D | High cost of feed/drugs |
|  |  | 6. Dog | 2 | 8 | 6 | 50 | 50 | D | High cost of drugs/rabies |
|  |  | 7.Donkey | 8 | 4 | 8 | 10 | 90 | D | Declining grazing land |
|  | Namoo | 1.Poultry | 2 | 4 | 4 | 20 | 80 | I | NCD, worms, mortality |
|  | Abbaskoma | 2. Cattle | 2 | 8 | 4 | 10 | 90 | D | Declining grazing land |
|  | And Dua | 3. Sheep | 2 | 4 | 2 | 10 | 90 | D | As above/destructive |
|  |  | 4. Goat | 2 | 2 | 2 | 20 | 80 | D | As above |
|  |  | 5. Pig | 2 | 4 | 2 | 10 | 90 | D | Poor housing/feed/drug |
|  |  | 6. Dog | 2 | 6 | 4 | 60 | 40 | D | High cost of food/rabies |
|  |  | 7.Donkey | 2 | 2 | 2 | 10 | 90 | D | Declining grazing land |

\*Poultry = Local fowl, Guinea fowl, Duck and Turkey, I = Increasing, S = Static, D = Decreasing

**Annex 7e: Community involvement, relative importance and trends in the production of major livestock in Bawku West district in Upper East Region**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **District** | **Community** | **Livestock** | **Involvement (1-10)** | | | **Relative importance**  **(1-100)** | | **Trend**  **(I/D/S)** | **Reason** |
| Bawku |  |  | **Men** | **Women** | **Youths** | **Food** | **Cash** |  |  |
| West | Binaba | 1.Cattle | 3 | 1 | 8 | 0/0/20 | 100/100/80 | D | Diseases/theft/no pasture |
|  |  | 2.Sheep | 7 | 3 | 6 | 0/10/20 | 100/90/80 | D | Theft/mortality |
|  |  | 3.Goat | 10 | 1 | 10 | 0/20/40 | 100/80/60 | I/D | Mortality |
|  |  | 4.Poultry | 10 | 5 | 10 | 10/20 | 90/100 | I/D | High keet mortality |
|  |  | 5.Pig | 6 | 1 | 5 | 0/10 | 100/90 | D |  |
|  |  | 6.Donkey | 4 | 3 | 7 | 0/0 | 100/100 | D |  |
|  |  | 7.Rabbit | 2 | 0 | 1 | 80/0 | 20/0 | D | Low market value |
|  |  | 7.Dog | 0 | 0 | 10 | 0/0/30 | 0/0/70 | D | Converted for security |
|  | Yarigu | 1.Cattle | 6 | 0 | 3 | 0/0/1 | 100/0/99 | D | Diseases/mortality |
|  |  | 2.Sheep | 8 | 2 | 4 | 10/5/10 | 90/95/90 | D/I | Theft/high cash value |
|  |  | 3.Goat | 9 | 3 | 6 | 10/10/10 | 90/90/90 | D/I | Diseases/high cash value |
|  |  | 4. Poultry | 10 | 3 | 10 | 20/20/30 | 80/80/70 | D/I | Diseases/easily sold |
|  |  | 5.Pig | 4 | 0 | 3 | 0/5/50 | 100/95/50 | D/I | Diseases/high cash value |
|  |  | 6. Donkey | 0 | 0 | 7 | 0/0/10 | 0/0/90 | D | Death/theft |
|  |  | 7.Dog | 9 | 0 | 0 | 0/0/50 | 0/0/50 | D | Overconsumption/theft |
|  | Tanga | 1.Cattle | 5 | 1 | 5 | 0/0/0 | 100/100/100 | I | Prestige and cash |
|  |  | 2.Sheep | 8 | 2 | 6 | 10/0/20 | 90/100/80 | I | Source of cash |
|  |  | 3.Goat | 10 | 3 | 10 | 10/0/20 | 90/100/80 | I | Source of cash |
|  |  | 4. Poultry | 10 | 3 | 10 | 20/30/30 | 80/70/70 | I | High cash/sacrifices |
|  |  | 5.Pig | 9 | 9 | 8 | 10/0/10 | 90/100/90 | I | Prolific |
|  |  | 6. Donkey | 0 | 2 | 3 | 0/0/0 | 0/100/100 | D/I | For traction |
|  |  | 7.Dog | 0 | 0 | 10 | 0/0/30 | 0/0/70 | I |  |
|  | Googo | 1.Cattle | 9 | 2 | 3 | 0/10/0 | 100/90/100 | D | Theft/mortality |
|  |  | 2.Sheep | 6 | 2 | 8 | 20/20/0 | 80/80/100 | S/D | As above/mortality |
|  |  | 3.Goat | 8 | 2 | 8 | 10/30/10 | 90/70/90 | I/D | Source of income/theft |
|  |  | 4. Poultry | 10 | 3 | 10 | 60/40/50 | 40/60/50 | I/D | Ready market/mortality |
|  |  | 5.Pig | 4 | 5 | 7 | 10/10/0 | 90/90/100 | I | Prolific |
|  |  | 6. Donkey | 0 | 8 | 4 | 0/20/40 | 0/80/60 | I | Transportation |
|  |  | 7.Dog | 0 | 0 | 9 | 0/0/30 | 0/0/70 | I | High littering/security |
|  | Tilli | 1.Cattle | 3 | 1 | 9 | 0/0/1 | 100/100/99 | I/D |  |
|  |  | 2.Sheep | 4 | 1 | 5 | 10/10/10 | 90/90/90 | I/D | Diseases |
|  |  | 3.Goat | 10 | 3 | 10 | 10/20/10 | 90/80/90 | I/D | Diseases |
|  |  | 4. Poultry | 10 | 4 | 10 | 50/30/50 | 50/70/50 | D | New Castle Disease |
|  |  | 5.Pig | 5 | 8 | 4 | 10/10/10 | 90/90/90 | D/I | Diseases/prolific |
|  |  | 6. Donkey | 7 | 3 | 4 | 0/0/0 | 100/100/100 | I | Animal traction/transport |
|  |  | 7.Dog | 0 | 0 | 10 | 0/0/10 | 0/0/90 | I | Security |

I = Increasing, S = Static, D = Decreasing

**Annex 7f: Community involvement, relative importance and trends in the production of major livestock in Bawku Municipal in Upper East Region**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **District** | **Community** | **Livestock** | **Involvement (1-10)** | | | **Relative importance**  **(1-100)** | | **Trend**  **(I/D/S)** | **Reason** |
| Bawku |  |  | **Men** | **Women** | **Youths** | **Food** | **Cash** |  |  |
| Municipal | Kaade | 1.Cattle | 4 | 0 | 2 | 0/0/0 | 100/0/100 | D | Mortality, theft, no water |
|  |  | 2.Sheep | 6 | 0 | 3 | 10/0/20 | 90/0/80 | S | No grazing area |
|  |  | 3.Goat | 9 | 2 | 7 | 10/10/20 | 90/90/80 | I |  |
|  |  | 4.Poultry | 10 | 2 | 10 | 20/10/50 | 80/90/50 | S | High keet mortality |
|  |  | 5.Pig | 2 | 8 | 1 | 0/5/0 | 100/95/100 | D |  |
|  |  | 6.Donkey | 0 | 0 | 3 | 0/0/0 | 0/0/100 | D |  |
|  |  | 7.Dog | 0 | 0 | 8 | 0/0/50 | 0/0/50 | I |  |
|  | Nafkolga | 1.Cattle | 5 | 1 | 5 | 0/20/10 | 100/80/90 | D/I |  |
|  |  | 2.Sheep | 9 | 2 | 6 | 0/10/15 | 100/90/85 | D/I | Mortality, theft |
|  |  | 3.Goat | 10 | 2 | 8 | 20/10/10 | 80/90/90 | D/I | ‘’ |
|  |  | 4.Poultry | 10 | 3 | 10 | 40/30/30 | 60/70/70 | D/I |  |
|  |  | 5.Pig | 5 | 7 | 4 | 20/5/5 | 80/95/95 | I | Ready market, income |
|  |  | 6.Donkey | 6 | 1 | 5 | 0/0/0 | 100/100/100 | I | Traction |
|  |  | 7.Dog | 0 | 0 | 5 | 0/0/10 | 0/0/90 | D |  |
|  | Nayoko | 1.Cattle | 6 | 0 | 5 | 0/0/0 | 100/0/100 | I/D | Inadequate pasture |
|  |  | 2.Sheep | 10 | 7 | 10 | 20/20/10 | 80/80/90 | I | Prolific and easy to rear |
|  |  | 3.Goat | 10 | 8 | 10 | 20/10/10 | 80/90/90 | I | Prolific and easy to keep |
|  |  | 4.Poultry | 10 | 6 | 10 | 50/40/50 | 50/60/50 | I | Improved vaccination |
|  |  | 5.Pig | 3 | 8 | 3 | 0/10/0 | 100/90/100 | I |  |
|  |  | 6.Donkey | 3 | 0 | 4 | 0/0/0 | 100/0/100 | I/D | Inadequate pasture |
|  |  | 7.Dog | 0 | 0 | 3 | 0/0/0 | 0/0/100 | D |  |
|  |  | 8.Rabbit | 4 | 0 | 3 | 0/40/30 | 0/60/70 | D |  |
|  | Binduri | 1.Cattle | 5 | 2 | 5 | 0/0/10 | 100/100/90 | D |  |
|  |  | 2.Sheep | 8 | 3 | 7 | 50/10/30 | 50/90/70 | I | Prolific |
|  |  | 3.Goat | 8 | 2 | 7 | 50/10/30 | 50/90/70 | I | Prolific |
|  |  | 4.Poultry | 10 | 3 | 10 | 30/30/40 | 70/70/60 | I | Prolific |
|  |  | 5.Pig | 4 | 6 | 2 | 10/30/0 | 90/70/100 | I |  |
|  |  | 6.Donkey | 5 | 1 | 5 | 0/0/0 | 100/100/100 | I | Animal traction |
|  |  | 7.Dog | 0 | 0 | 9 | 0/0/30 | 0/0/70 |  |  |
|  | Ninkogo | 1.Cattle | 8 | 0 | 4 | 0/0/30 | 100/0/70 | D | Inadequate grazing area |
|  |  | 2.Sheep | 10 | 3 | 5 | 10/5/60 | 90/85/40 | I | Prolific |
|  |  | 3.Goat | 10 | 3 | 6 | 10/10/40 | 90/90/60 | I | Prolific |
|  |  | 4.Poultry | 10 | 3 | 7 | 30/30/60 | 70/70/40 | S/I | Diseases/easy to rear |
|  |  | 5.Pig | 5 | 1 | 3 | 0/0/10 | 100/100/90 | I | Prolific |
|  |  | 6.Donkey | 0 | 2 | 2 | 0/0/10 | 0/100/90 | I | Work animal |
|  |  | 7.Dog | 0 | 0 | 1 | 0/0/3 | 0/0/97 |  |  |

I = Increasing, S = Static, D = Decreasing

**Annex 8: Community involvement and trends in the processing and marketing of major crops grown in Upper East Region**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **District** | **Community** | **Crops** | **Processing** | | **Marketing** | |
|  |  |  | Involvement (1-10)  (M/W/Y) | Trends and reason | Involvement (1-10)  (M/W/Y) | Trends and reasons |
| Talensi/ | Sakote, | 1.Maize | 5/4/5 | D, demand low | 4/4/5 | D, main food crop |
| Nabdam | Winkogo, | 2. Sorghum | 5/3/5 | I, Pito/malt | 5/3/5 | D, low production |
|  | Balungu | 3. Millet | 5/4/5 | D, low demand | 5/3/5 | D, low production |
|  |  | 1.Groundnut | 5/3/5 | D, low production | 5/4/5 | D, low production |
|  |  | 2.Cowpea | 5/3/5 | S, occasional need | 5/4/5 | D, low production |
|  |  | 3.Soybean | 5/4/5 | D, new *dawadawa* | 5/5/5 | D, production |
|  |  | 4. Bambara groundnut | 5/4/5 | D, low production |  |  |
|  |  | **Livestock** |  |  |  |  |
| Bongo | Gowerie | 1.Poultry |  | S, Home use | 2/2/2 | D, worms, NCD |
|  | Beo Moshid. | 2.Goat |  | S, Home use | 3/3/3 | D, PPR, worms |
|  | Soe Yidongo | 3. Sheep |  | S, Home use | 3/3/3 | D, PPR, worms |
|  |  | 4.Cattle |  | S, Home use | 1/5/2 | D, decline grazing land |
|  |  | 5. Pig |  | S, Home use | 5/5/5 | D, high cost of product. |
|  |  | 6. Dog |  | S, Home use | 5/4/5 | D, pet and latter sold out |
| Bawku | Binaba | **Crops** |  |  |  |  |
| West |  | 1.Maize | 1/6/3 | I, Food processing | 2/5/3 | I, food and cash |
|  |  | 2.Sorghum | 1/9/0 | I, Pito/malt | 1/8/1 | Malt |
|  |  | 3.Rice | 1/8/1 | I, High mkt. value |  |  |
|  |  | 1.Soybean | 1/7/2 | I, *Dawadawa*/cash | 1/6/3 | I, Increased yield |
|  |  | 2.Cowpea | 1/8/1 |  | 1/8/1 | S, locally used |
|  |  | 3. Groundnut | 1/7/2 | I, Increase demand | 2/6/2 | S, low yields |
|  |  | **Livestock** |  |  |  |  |
|  |  | 1.Cattle |  | Not processed | 10/0/0 | Not commonly sold |
|  |  | 2.Goat | 3/1/6 | Sold whole/kebab | 7/0/3 | D, mortality |
|  |  | 3.Sheep | 3/1/6 | Sold whole/kebab | 8/0/2 | S, prestige/not eaten |
|  |  | 4.Poultry | 3/4/3 | Processed for sale | 3/3/4 | D, mortality |
|  |  | 5. Pig | 1/2/7 | Sold whole | 1/6/3 | I, prolific/easily sold |
|  |  | 6. Donkey |  |  | 9/0/1 | S, for farm work |
|  | Yarigu | **Crops** |  |  |  |  |
|  |  | 1.Maize | 2/5/3 | I, income/food | 2/7/1 | S, cash |
|  |  | 2.Sorghum | 1/8/1 | I,’’ | 0/9/1 | S, cash |
|  |  | 3.Millet | 1/7/2 | I,’’ | 2/7/1 | S, food and cash |
|  |  | 4.Rice |  |  | 1/8/1 | I, high production |
|  |  | 1.Soybean | 1/7/2 | I, for women | 1/7/2 | I, high production |
|  |  | 2.Cowpea | 1/8/1 | I, for women invol. | 1/7/2 | I, ‘’ |
|  |  | 3. Groundnut | 2/6/2 | I, ‘’ | 2/6/3 | D, low production |
|  |  | **Livestock** |  |  |  |  |
|  |  | 1.Cattle | 1/0/0 | Sold whole | 9/0/1 | D, theft |
|  |  | 2.Goat | 2/3/5 | Roasting and frying | 7/1/2 |  |
|  |  | 3.Sheep | 2/3/5 | Sold whole | 8/0/2 | Death of animals |
|  |  | 4.Pig | 1/6/3 | Sold to butchers | 1/6/3 | Reared for cash |
|  |  | 5.Poultry | 1/6/3 | Roasting and frying | 6/2/2 | Cash and food |
|  |  | 6. Donkey | 1/1/0 | Sold whole | 8/0/2 | Draught animal |

M = Men, W = Women, Y = Youths, I = Increasing, S = Static, D = Decreasing

**Annex 9a: Crop and livestock census and ranking by gender in Talensi/Nabdam and Bongo districts in Upper East Region**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| District | Community | Sakote | | | | | | Winkogo | | | | | | Balungu | | | | | |
| Talensi/ |  | Food | | | Cash | | | Food | | | Cash | | | Food | | | Cash | | |
| Nabdam | **Cereals** | M | W |  | M | W |  | M | W |  | M | W |  | M | W |  | M | W |  |
|  | 1.Maize | 3rd | 3rd |  | 2nd | 2nd |  | 3rd | 3rd |  |  |  |  | 3rd | 3rd |  | 1st | 1st |  |
|  | 2.Sorghum | 2nd | 5th |  | 1st | 1st |  | 5th | 5th |  |  |  |  | 2nd | 5th |  | 2nd | 2nd |  |
|  | 3. Rice | 5th | 4th |  | 5th | 3rd |  | 4th | 4th |  |  |  |  | 5th | 4th |  | 3rd | 3rd |  |
|  | 4. Early millet | 1st | 1st |  | 3rd | 5th |  | 1st | 1st |  |  |  |  | 1st | 1st |  | 5th | 5th |  |
|  | 5. Late millet | 4th | 2nd |  | 4th | 4th |  | 2nd | 2nd |  |  |  |  | 4th | 2nd |  | 4th | 4th |  |
|  | **Legumes** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 1. Groundnut | 1st | 1st |  | 1st | 1st |  | 1st | 1st |  |  |  |  | 1st | 1st |  | 1st | 1st |  |
|  | 2.Cowpea | 3rd | 2nd |  | 2nd | 2nd |  | 2nd | 2nd |  |  |  |  | 3rd | 2nd |  | 2nd | 2nd |  |
|  | 3.Soybean | 4th | 4th |  | 4th | 4th |  | 4th | 4th |  |  |  |  | 4th | 4th |  | 4th | 4th |  |
|  | 4. Bambara groundnut | 2nd | 3rd |  | 3rd | 3rd |  | 3rd | 3rd |  |  |  |  | 2nd | 3rd |  | 3rd | 3rd |  |
|  | **Livestock** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 1.Goat | 3rd | 2nd |  | 2nd | 3rd |  | 3rd | 2nd |  | 2nd | 3rd |  | 3rd | 1st |  | 3rd | 3rd |  |
|  | 2.Sheep | 4th | 3rd |  | 4th | 4th |  | 4th | 3rd |  | 4th | 4th |  | 4th | 2nd |  | 5th | 4th |  |
|  | 3.Poultry | 1st | 1st |  | 1st | 1st |  | 1st | 1st |  | 1st | 1st |  | 1st | 3rd |  | 1st | 1st |  |
|  | 4.Cattle | 7th | 6th |  | 7th | 7th |  | 7th | 5th |  | 7th | 7th |  | 7th | 7th |  | 2nd | 7th |  |
|  | 5.Pig | 5th | 5th |  | 3rd | 2nd |  | 5th | 7th |  | 3rd | 2nd |  | 5th | 4th |  | 4th | 2nd |  |
|  | 6. Dog | 2nd | 4th |  | 5th | 5th |  | 2nd | 4th |  | 5th | 5th |  | 2nd | 5th |  | 6th | 5th |  |
|  | 7.Donkey | 6th | 7th |  | 6th | 6th |  | 6th | 6th |  | 6th | 6th |  | 6th | 6th |  | 7th | 6th |  |
| Bongo | **Community** | Goweri | | | | | | Beo Moshidaboroo | | | | | | Soe Yidongo | | | | | |
|  |  | Food | | | Cash | | | Food | | | Cash | | | Food | | | Cash | | |
|  | **Cereals** | M | W |  | M | W |  | M | W | Y | M | W |  | M | W |  | M | W |  |
|  | 1.Maize | 3rd | 5th |  |  |  |  | 3rd | 3rd |  |  |  |  | 4th | 5th |  | 2nd | 2nd |  |
|  | 2.Sorghum | 1st | 2nd |  |  |  |  | 1st | 1st |  |  |  |  | 1st | 2nd |  | 1st | 1st |  |
|  | 3.Rice | 5th | 4th |  |  |  |  | 5th | 4th |  |  |  |  | 5th | 4th |  | 5th | 3rd |  |
|  | 4. Early millet | 2nd | 1st |  |  |  |  | 2nd | 2nd |  |  |  |  | 2nd | 1st |  | 3rd | 5th |  |
|  | 5. Late millet | 4th | 3rd |  |  |  |  | 4th | 5th |  |  |  |  | 3rd | 3rd |  | 4th | 4th |  |
|  | **Legumes** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 1.Groundnut | 1st | 1st |  |  |  |  | 2nd | 1st |  |  |  |  | 3rd | 2nd |  | 1st | 1st |  |
|  | 2.Cowpea | 2nd | 2nd |  |  |  |  | 1st | 3rd |  |  |  |  | 2nd | 1st |  | 2nd | 2nd |  |
|  | 3.Soybean | 4th | 4th |  |  |  |  | 4th | 4th |  |  |  |  | 4th | 4th |  | 4th | 4th |  |
|  | 4. Bambara groundnut | 3rd | 3rd |  |  |  |  | 3rd | 2nd |  |  |  |  | 1st | 3rd |  | 3rd | 3rd |  |
|  | **Livestock** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 1.Goat |  |  |  | 7th | 7th |  | 2nd | 2nd |  | 4th | 2nd |  | 2nd | 2nd |  | 2nd | 3rd |  |
|  | 2.Sheep |  |  |  | 2nd | 2nd |  | 3rd | 2nd |  | 3rd | 3rd |  | 3rd | 3rd |  | 4th | 4th |  |
|  | 3.Poultry |  |  |  | 1st | 1st |  | 1st | 1st |  | 1st | 1st |  | 1st | 1st |  | 1st | 1st |  |
|  | 4.Cattle |  |  |  | 4th | 4th |  | 4th | 5th |  | 5th | 6th |  | 4th | 4th |  | 6th | 6th |  |
|  | 5.Pig |  |  |  | 3rd | 3rd |  | 6th | 6th |  | 7th | 5th |  | 6th | 6th |  | 3rd | 2nd |  |
|  | 6.Dog |  |  |  | 6th | 6th |  | - | - |  | - | - |  | - | - |  | - | - |  |
|  | 7. Donkey |  |  |  | 5th | 5th |  | 5th | 4th |  | 6th | 3rd |  | 5th | 5th |  | 5th | 5th |  |

M = Men, W = Women, Y = Youths

**Annex 9b: Crop and livestock census and ranking by gender in Bawku West and Bawku municipal in Upper East Region**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| District | Community | Binaba | | | | | | Yarigu | | | | | | Googo | | | | | |
|  |  | Food | | | Cash | | | Food | | | Cash | | | Food | | | Cash | | |
| Bawku | **Cereals** | M | W | Y | M | W | Y | M | W | Y | M | W | Y | M | W |  |  | W | Y |
| West | 1.Maize | 2nd | 1st | 2nd | 1st | 2nd | 2nd | 2nd | 1st | 2nd | 1st | 2nd | 1st | 2nd | 1st |  |  | 2nd | 1st |
|  | 2.Sorghum | 4th | 4th | 4th | 3rd | 3rd | 3rd | 4th | 4th | 4th | 3rd | 3rd | 3rd | 3rd | 4th |  |  | 3rd | 4th |
|  | 3. Rice | 3rd | 2nd | 3rd | 2nd | 1st | 1st | 3rd | 2nd | 3rd | 2nd | 1st | 2nd | 4th | 3rd |  |  | 1st | 2nd |
|  | 4. Early millet | 1st | 3rd | 1st | 4th | 4th | 4th | 1st | 3rd | 1st | 4th | 4th | 4th | 1st | 1st |  |  | 4th | 3rd |
|  | 5. Late millet | 1st | 3rd | 1st | 4th | 4th | 4th | 1st | 3rd | 1st | 4th | 4th | 4th | 1st | 1st |  |  | 4th | 3rd |
|  | **Legumes** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 1. Groundnut | 2nd | 1st | 3rd | 4th | 3rd | 4th | 2nd | 1st | 1st | 3rd | 3rd | 2nd | 4th | 1st |  |  | 3rd | 1st |
|  | 2.Cowpea | 4th | 3rd | 2nd | 1st | 1st | 1st | 4th | 3rd | 2nd | 1st | 1st | 1st | 1st | 2nd |  |  | 1st | 2nd |
|  | 3.Soybean | 3rd | 4th | 4th | 2nd | 2nd | 3rd | 3rd | 2nd | 3rd | 2nd | 4th | 3rd | 2nd | 3rd |  |  | 4th | 3rd |
|  | 4. Bambara groundnut | 1st | 2nd | 1st | 3rd | 4th | 2nd | 1st | 4th | 4th | 4th | 2nd | 4th | 3rd | 4th |  |  | 2nd | 4th |
|  | **Livestock** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 1.Goat | 2nd | 3rd | 2nd | 4th | 4th | 5th | 2nd | 3rd | 2nd | 2nd | 1st | 2nd | 2nd | 3rd |  |  | 1st | 4th |
|  | 2.Sheep | 3rd | 4th | 4th | 2nd | 5th | 4th | 3rd | 4th | 3rd | 1st | 5th | 4th | 3rd | 4th |  |  | 5th | 3rd |
|  | 3.Poultry | 1st | 1st | 1st | 7th | 2nd | 6th | 1st | 1st | 1st | 4th | 2nd | 6th | 1st | 1st |  |  | 2nd | 5th |
|  | 4.Cattle | 4th | - | - | 1st | - | 1st | 4th | - | 6th | 3rd | - | 1st | 3rd | - |  |  | - | 1st |
|  | 5.Pig | 6th | 6th | 3rd | 3rd | 1st | 3rd | 6th | 6th | 4th | 5th | 4th | 3rd | 6th | 6th |  |  | 4th | 7th |
|  | 6. Dog | - | - | 5th | - | - | 2nd | - | - | 5th | - | - | 5th | - | - |  |  | - | 2nd |
|  | 7.Donkey | 5th | 3rd | - | 5th | 6th | - | 5th | 5th | - | 6th | 6th | - | 3rd | 5th |  |  | 6th | 6th |
| Bawku | **Community** | Nayoko | | | | | | Binduri | | | | | | Ninkogo | | | | | |
| Municipal |  | Food | | | Cash | | | Food | | |  | | | Food | | | Cash | | |
|  | **Cereals** | M | W | Y |  | W |  | M |  | Y |  |  |  | M | W | Y | M | W | Y |
|  | 1.Maize | 1st | 1st | 1st |  | 2nd |  | 1st |  | 1st |  |  |  | 2nd | 1st | 2nd | 1st | 2nd | 1st |
|  | 2.Sorghum | 4th | 4th | 4th |  | 3rd |  | 3rd |  | 4th |  |  |  | 4th | 4th | 4th | 3rd | 3rd | 3rd |
|  | 3.Rice | 5th | 3rd | 3rd |  | 1st |  | 5th |  | 3rd |  |  |  | 3rd | 2nd | 3rd | 2nd | 1st | 2nd |
|  | 4. Early millet | 2nd | 2nd | 2nd |  | 4th |  | 2nd |  | 2nd |  |  |  | 1st | 3rd | 1st | 4th | 4th | 4th |
|  | 5. Late millet | 3rd | 2nd | 2nd |  | 4th |  | 4th |  | 2nd |  |  |  | 1st | 3rd | 1st | 4th | 4th | 4th |
|  | **Legumes** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 1.Groundnut | 3rd | 1st | 4th |  | 4th |  | 4th |  | 4th |  |  |  | 1st | 2nd | 1st | 2nd | 1st | 3rd |
|  | 2.Cowpea | 2nd | 2nd | 1st |  | 2nd |  | 1st |  | 1st |  |  |  | 2nd | 1st | 2nd | 1st | 2nd | 2nd |
|  | 3.Soybean | 1st | 3rd | 2nd |  | 3rd |  | 2nd |  | 3rd |  |  |  | 4th | 3rd | 4th | 3rd | 3rd | 4th |
|  | 4. Bambara groundnut | 4th | 4th | 2nd |  | 1st |  | 3rd |  | 2nd |  |  |  | 3rd | 4th | 3rd | 4th | 5th | 1st |
|  | **Livestock** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 1.Goat | 2nd | 3rd | 2nd |  | 1st |  | 2nd |  | 2nd |  |  |  | 2nd | 3rd | 2nd | 3rd | 1st | 3rd |
|  | 2.Sheep | 3th | 4th | 3rd |  | 2nd |  | 3rd |  | 3rd |  |  |  | 4th | 4th | 3rd | 2nd | 2nd | 1st |
|  | 3.Poultry | 1st | 1st | 1st |  | 4th |  | 1st |  | 1st |  |  |  | 1st | 1st | 1st | 5th | 4th | 4th |
|  | 4.Cattle | 4th | 7th | 5th |  | 7th |  | 4th |  | 4th |  |  |  | 7th | - | 6th | 1st | - | 5th |
|  | 5.Pig | 7th | 6th | 4th |  | 3rd |  | 6th |  | 5th |  |  |  | 5th | 5th | 4th | 4th | 3rd | 2nd |
|  | 6.Dog | - | - | 6th |  | - |  | - |  | 6th |  |  |  | - | - | 5th | - | - | 6th |
|  | 7. Donkey | 5th | 5th | 7th |  | 6th |  | 5th |  | 7th |  |  |  | 6th | 6th | - | 6th | 6th | - |

M = Men, W = Women, Y = Youths

**Annex 10: Problem census and prioritization spread and coping strategies in Upper East Region**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **District** | **Crop production problems** | **Spread** | **Coping strategy/advantage**  **Disadvantages/%involved** | **Trend (I/D/S) and Reasons** |
| All districts | 1.Drought/unreliable rainfall/erratic | \*\*\* | * 1. Use drought tolerant varieties   2. Early maturing varieties/high yield, early maturing, high value/high input cost/60% | I, many buy the improved seeds |
|  | 2.Low soil fertility | \*\*\* | 2.1use farm yard manure/high yield/inadequate access/90%  2.2 Composting of household sweeping  2.3 Intercropping of cereals with legumes | I, most farmers keep livestock |
|  | 3.Lack improved seeds | \*\*\* |  |  |
|  | 4. Inadequate land prep. Eqpt. | \*\*\* | Use of animal traction/early land prep./ prep. Of heavy soils difficult/60% | I, farmers acquire traction team at Sheaga |
|  | 5.Pests, diseases and weeds | \*\*\* | Spraying chemicals |  |
|  | 6. *Striga* infestation | \* |  |  |
|  | 7.Postharvest losses | \* |  |  |
|  | 8.Animal destruction of crops | \* | Reporting to local chief |  |
|  | 9.High cost of agro-inputs | \*\* |  |  |
|  | 10.Low extension coverage | \* |  |  |
|  | 11. Poor storage |  | Use jute/polythene sacks |  |
|  | 12. Flooding |  |  |  |
|  | **Livestock problems** |  |  |  |
|  | 1.PPR | \*\*\* | Early report, treatment and vaccination /mortality reduced/increased cost/70% | I, many farmers report to MoFA |
|  | 2. Mange | \*\* |  |  |
|  | 3. Anthrax | \*\* |  |  |
|  | 4.New Castle Disease | \*\*\* |  |  |
|  | 5.Poor housing | \*\*\* |  |  |
|  | 6. High keet mortality | \*\*\* | Artificial brooding of guinea fowl keets/reduced mortality/increased cost/30% | I, many build brooding houses |
|  | 7. Low access to vet. Services | \* |  |  |
|  | 8.African swine fever | \* |  |  |
|  | 9.Worms and ticks | \* |  |  |
|  | 10. Theft |  | Enforcing security |  |
|  | 11.Inadequate pasture |  |  |  |
|  | 12.Inadequate watering points |  |  |  |
|  | **Processing problems** |  |  |  |
|  | 1.Lack processing skills | \*\*\* |  |  |
|  | 2.Lack processing equipment | \*\*\* |  |  |
|  | **Marketing problems** |  |  |  |
|  | 1.Low produce price | \*\*\* | 1.Sell in neighbouring communities  2.Store until prices improve |  |
|  | 2.Exploitation by middlemen | \*\*\* |  |  |
| Bongo/  Bawku West | Lack of credit | \*\*\* | 1.Money lending through susu/access to some money, increase yield/not enough, interest high/10%  2.Borrow from friends | D, interest rate high |

\*\*\* = Very widespread, \*\* =Widespread, \* = sporadic, I = Increasing, S = Static, D = Decreasing

**Annex 11: Biophysical characteristics of the project communities in Upper West Region**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **District** | **Community** | **Population/**  **settlement pattern** | **Comun. Hierarchy**  **/ethnic groups** | **Distance from DC** | **Agro-ecology/**  **vegetation** | **Soil type** | **Number present** | | |
| Nadowli |  |  |  |  |  |  | **M** | **F** | **Total** |
|  | Tabiesi | 2027 (1022 M, 1005 F), slightly dense | Dagaaba | 45 | Guinea savanna | Sandy loam | 54 | 37 | 91 |
|  | Goriyiri | 149 (76 M, 73 F), sparse | Dagaaba | 2 | Guinea savanna | Sandy loam | 19 | 25 | 44 |
|  | Ombo | 517 (259 M, 258 F), sparse | Dagaaba | 36 | Guinea savanna | Sandy loam | 36 | 20 | 56 |
|  | Daffiama | 3026 (1403 M, 1623 F) dense | Dagaaba | 56 | Guinea savanna | Sandy loam | 44 | 67 | 111 |
|  | Kalsegra | 797 (403 M, 394 F), sparse | Dagaaba | 44 | Guinea savanna | Sandy loam/  laterite | 34 | 30 | 64 |
|  |  |  |  |  |  |  |  |  |  |
| Wa East | Loggu | 1098 (554 M, 544 F) clustered | Chief, Tindaana/  Waala, Lobbi | 138 | Guinea savanna | Sandy loam | 27 | 39 | 66 |
|  | Bulenga | 2392 (1139 M, 1253 F) clustered | Chakali, Waala | 150 | Guinea savanna | Sandy loam | 28 | 17 | 45 |
|  | Kpalinye | 345 (170 M, 175 F), scattered | Chief, Tindaana/  Dagaaba, Waala and Lobbi | 140 | Guinea savanna | Sandy loam | 13 | 14 | 27 |
|  | Naaha | 611 (286 M, 325 F) clustered | Chief,Tindana/  Waala | 135 | Guinea savanna | Sandy loam | 106 | 77 | 183 |
|  | Zinnyea | 244 (117 M, 127 F) sparse | Chief, Tindaana/  Dagaaba, Waala, Lobbi | - | Guinea savanna | Sandy loam | 43 | 10 | 53 |
|  |  |  |  |  |  | Total | 404 | 336 | 740 |

**Annex 12a: Community involvement, relative importance and trends in the production of major crops grown in Nadowli district in Upper West Region**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Community | Crops grown | Involvement (1-10) | | | Relative importance  (1-100) | | Trend  (I/D/S) | Reason |
|  |  | Men | Women | Youths | Food | Cash |  |  |
| Tabiase | 1.Sorghum | 10 |  |  | 40 | 60 | D | Erratic rains/low fert. |
|  | 2.Maize | 10 |  |  | 40 | 60 | I | High yield/fertz.resp. |
|  | 3.Millet | 10 |  |  | 99 | 1 | D | Erratic rains/low fert. |
|  | 4.Rice | 10 |  |  | 20 | 80 | D | Erratic rains/low fert. |
|  | 1.Cowpea | 10 |  |  | 50 | 50 | I | Early vars./pest contr. |
|  | 2.Groundnut | 10 |  |  | 20 | 80 | D | Erratic rains/low fert. |
|  | 3. Bambara groundnut | 5 |  |  | 20 | 80 | D | Erratic rains/low fert. |
|  | 4.Soybean | 3 |  |  | 5 | 95 | D | Erratic rains/low fert. |
|  | 5. Kersting nut | 1 |  |  | 99 | 1 | D | Low market/tedious |
| Goriyiri | 1.Sorghum | 10 | 0 |  | 40 | 60 | D | Erratic rains/low fert. |
|  | 2.Maize | 10 | 10 |  | 50 | 50 | I | High yield/fertz. resp. |
|  | 3.Millet | 5 | 0 |  | 99 | 1 | D | Erratic rain/local var. |
|  | 4.Rice | 8 | 8 |  | 40 | 60 | I | Improved mgt. pract. |
|  | 1.Cowpea | 10 | 5 |  | 30 | 70 | I | Improved mgt. pract. |
|  | 2.Groundnut | 10 | 10 |  | 20 | 80 | D | Erratic rains/low fert. |
|  | 3. Bambara groundnut | 8 | 10 |  | 30 | 70 | I | Improved mgt. pract. |
|  | 4.Soybean | 4 | 0 |  | 2 | 98 | I | Improved mgt. pract. |
| Ombo | 1.Sorghum | 9 |  |  | 40 | 60 | D | Erratic rains/low fert. |
|  | 2.Maize | 10 |  |  | 40 | 60 | I | Improved mgt.pract. |
|  | 3.Millet | 7 |  |  | 50 | 50 | D | Erratic rain/poor mgt. |
|  | 4.Rice | 5 |  |  | 50 | 50 | D | Erratic rain/poor mgt. |
|  | 1.Cowpea | 10 |  |  | 50 | 50 | I | Improved mgt.pract. |
|  | 2.Groundnut | 10 |  |  | 10 | 90 | D | Erratic rain/poor mgt. |
|  | 3. Bambara groundnut | 10 |  |  | 50 | 50 | I | Low labour requirem. |
|  | 4.Soybean | 1 |  |  | 50 | 50 | D | Erratic rain/low fert. |
| Daffiama | 1.Sorghum | 6 |  |  | 60 | 40 | D | As above |
|  | 2.Maize | 10 |  |  | 50 | 50 | I | Improved mgt.pract. |
|  | 3.Millet | 3 |  |  | 70 | 30 | D | Erratic rain/poor mgt. |
|  | 4.Rice | 10 |  |  | 60 | 40 | D | As above |
|  | 1.Cowpea | 10 |  |  | 95 | 5 | I | Improved mgt.pract. |
|  | 2.Groundnut | 10 |  |  | 10 | 90 | D | Erratic rain/poor mgt. |
|  | 3. Bambara groundnut | 10 |  |  | 90 | 10 | I | Low labour input |
|  | 4.Soybean | 1 |  |  | 2 | 98 | D | Erratic rain/poor mgt. |
| Kalsegra | 1.Sorghum | 10 |  |  | 90 | 10 | I | Increase in pito use |
|  | 2.Maize | 10 |  |  | 60 | 40 | I | Improved mgt. pract. |
|  | 3.Millet | 5 |  |  | 99 | 1 | D | Erratic rain/poor mgt |
|  | 4.Rice | 10 |  |  | 50 | 50 | I | Improved mgt. pract. |
|  | 1.Cowpea | 10 |  |  | 80 | 20 | I | As above |
|  | 2.Groundnut | 10 |  |  | 20 | 80 | I | As above |
|  | 3. Bambara groundnut | 10 |  |  | 60 | 40 | I | As above |
|  | 4.Soybean | 3 |  |  | 10 | 90 | D | Erratic rain/poor mgt. |

I = Increasing, S = Static, D = Decreasing

**Annex 12b: Community involvement, relative importance and trends in the production of major crops grown in Wa East district in Upper West Region**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Community | Crops grown | Involvement (1-10) | | | Relative importance  (1-100) | | Trend  (I/D/S) | Reason |
|  |  | Men | Women | Youths | Food | Cash |  |  |
| Kpalinye | 1.Sorghum | 10 | 0 |  | 60 | 40 | D | Erratic rain/low fert./*Striga* |
|  | 2.Maize | 10 | 0 |  | 70 | 30 | I | Improved mgt. practices |
|  | 3.Millet | 6 | 0 |  | 99 | 1 | I | *Striga*/drought tolerant |
|  | 4.Rice | 5 | 2 |  | 20 | 80 | I | Improved mgt. practices |
|  | 1.Cowpea | 9 | 5 |  | 10 | 90 | I | As above |
|  | 2.Groundnut | 9 | 9 |  | 20 | 80 | I | Rotation/good price |
|  | 3. Bambara groundnut | 4 | 7 |  | 10 | 90 | D | Erratic rain/declining fert. |
|  | 4.Soybean | 7 | 5 |  | 10 | 90 | I | Rotation/good price |
| Naaha | 1.Sorghum | 2 |  |  | 40 | 60 | D | Erratic rain/low fert./*Striga* |
|  | 2.Maize | 10 |  |  | 20 | 80 | I | Improved mgt. practices |
|  | 3.Millet | 1 |  |  | 40 | 60 | D | Erratic rain/declining fert. |
|  | 4.Rice | 6 |  |  | 30 | 70 | I | Improved mgt. practices |
|  | 1.Cowpea | 7 |  |  | 50 | 50 | I | As above |
|  | 2.Groundnut | 10 |  |  | 20 | 80 | D | Erratic rain/low fert./disea. |
|  | 3. Bambara groundnut | 5 |  |  | 50 | 50 | D | Erratic rain/low fert |
|  | 4.Soybean | 10 |  |  | 50 | 50 | I | Increased fert./high price |
| Zinnyea | 1.Sorghum | 6 |  |  | 100 | 0 | D | High *Striga* infestation |
|  | 2.Maize | 10 |  |  | 50 | 50 | I | Increased fertilizer use |
|  | 3.Millet | 5 |  |  | 100 | 0 | D | Erratic rain/low fertility |
|  | 4.Rice | 5 |  |  | 60 | 40 | D | Erratic rain/low fertility |
|  | 1.Cowpea | 6 |  |  | 20 | 80 | D | High cost of insecticides |
|  | 2.Groundnut | 9 |  |  | 3 | 97 | I | Tolerant to drought |
|  | 3.Soybean | 7 |  |  | 20 | 80 | I | *Striga* control/fertility |
| Loggu | 1.Sorghum | 10 |  |  | 80 | 20 | D | *Striga* infestation |
|  | 2.Maize | 10 |  |  | 80 | 20 | I | Use of fertilizer |
|  | 3.Millet | 10 |  |  | 85 | 15 | D | *Striga* infestation |
|  | 4.Rice | 4 |  |  | 30 | 70 | D | Erratic rain/declining fert. |
|  | 1.Cowpea | 10 |  |  | 50 | 50 | I | Improved mgt. practices |
|  | 2.Groundnut | 10 |  |  | 2 | 98 | I | Low cost of production |
|  | 3. Bambara groundnut | 8 |  |  | 50 | 50 | D | Labour intensive/low fert. |
|  | 4.Soybean | 6 |  |  | 20 | 80 | I | Improved mgt.practices |
| Bulenga | 1.Sorghum | 9 |  |  | 50 | 50 | D | Low market price |
|  | 2.Maize | 10 |  |  | 90 | 10 | I | High use/income |
|  | 3.Millet | 10 |  |  | 5 | 95 | D | Low price/local varieties |
|  | 4.Rice | 8 |  |  | 15 | 85 | D | Erratic rain/high ferz cost |
|  | 1.Cowpea | 10 |  |  | 20 | 80 | I | High market value |
|  | 2.Groundnut | 6 |  |  | 2 | 98 | I | Low cost/high income |
|  | 3. Bambara groundnut | 10 |  |  | 10 | 90 | I | Good market price |
|  | 4.Soybean | 8 |  |  | 10 | 90 | D | Labour intensive/no markt |

I = Increasing, S = Static, D = Decreasing

**Annex 13: Community involvement, relative importance and trends in production of major livestock types in Upper West Region**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| District | Community | Livestock | Involvement (1-10) | | | Relative importance (1-100) | | Trend (I/D/S) | Reason |
|  |  |  | Men | Women | Youths | Food | Cash |  |  |
| Nadowli | Tabiase | 1.Goat | 10 |  |  | 10 | 90 | D | Diseases/mortality |
|  |  | 2.Cattle | 10 |  |  | 1 | 99 | I | Proper care |
|  |  | 3.Sheep | 9 |  |  | 20 | 80 | D | Diseases/mortality |
|  |  | 4.Poultry | 10 |  |  | 50 | 50 | D | Diseases/mortality |
|  |  | 5.Pigs | 3 |  |  | 5 | 95 | D | Diseases/mortality |
|  |  | 6.Rabbit | 3 |  |  | 99 | 1 | 1 | Improved care |
|  | Goriyiri | 1.Goat | 10 | 0 |  | 10 | 90 | D | Diseases/mortality |
|  |  | 2.Sheep | 7 | 0 |  | 10 | 90 | D | Diseases/mortality |
|  |  | 3.Poultry | 10 | 0 |  | 50 | 50 | D | Diseases/mortality |
|  |  | 4.Pigs | 5 | 0 |  | 50 | 50 | D | Diseases/mortality |
|  |  | 5.Donkey | 1 | 0 |  | 0 | 100 | I | Proper care/traction |
|  | Ombo | I. Goat | 10 |  |  | 10 | 90 | D | Diseases/mortality |
|  |  | 2.Cattle | 5 |  |  | 2 | 98 | D | Diseases/mortality |
|  |  | 3.Sheep | 10 |  |  | 10 | 90 | D | Diseases/mortality |
|  |  | 4.Poultry | 10 |  |  | 50 | 50 | D | Diseases/mortality |
|  |  | 5.Pigs | 9 |  |  | 5 | 95 | D | Diseases/mortality |
|  | Daffiama | 1.Goat | 8 |  |  | 3 | 97 | D | As above |
|  |  | 2.Cattle | 2 |  |  | 1 | 99 | D | As above |
|  |  | 3.Sheep | 6 |  |  | 3 | 97 | D | As above |
|  |  | 4.Poultry | 10 |  |  | 50 | 50 | D | As above |
|  |  | 5.Pigs | 9 |  |  | 3 | 97 | D | As above |
|  |  | 6.Rabbit | 1 |  |  | 99 | 1 | D | High mortality |
|  | Kalsegra | 1.Goat | 10 |  |  | 10 | 90 | D | Diseases/mortality |
|  |  | 2.Sheep | 5 |  |  | 10 | 90 | D | Diseases/mortality |
|  |  | 3.Poultry | 10 |  |  | 20 | 80 | D | Diseases/mortality |
|  |  | 4.Pigs | 8 |  |  | 5 | 95 | D | Diseases/mortality |
| Wa East | Kpalinye | 1.Goat | 10 | 2 |  | 10 | 90 | D | Diseases/mortality |
|  |  | 2.Cattle | 4 | 0 |  | 10 | 90 | I | Proper care |
|  |  | 3.Sheep | 6 | 0 |  | 10 | 90 | D | Diseases/mortality |
|  |  | 4.Poultry | 10 | 4 |  | 60 | 40 | I | Spiritual activities |
|  |  | 5.Pigs | 5 | 3 |  | 10 | 90 | S | Diseases/mortality |
|  | Naaha | 1.Goat | 10 |  |  | 5 | 95 | D | Diseases/mortality |
|  |  | 2.Cattle | 5 |  |  | 1 | 99 | D | Diseases/mortality |
|  |  | 3.Sheep | 10 |  |  | 5 | 95 | D | Diseases/mortality |
|  |  | 4.Poultry | 10 |  |  | 20 | 80 | D | Diseases/mortality |
|  | Zinnye | 1.Cattle | 3 |  |  | 30 | 70 | D | High theft |
|  |  | 2.Goat | 7 |  |  | 10 | 90 | D | High theft |
|  |  | 3.Sheep | 3 |  |  | 10 | 90 | D | As above |
|  |  | 4.Poultry | 10 |  |  | 60 | 40 | S | New castle diseas. |
|  |  | 5.Pigs | 8 |  |  | 70 | 30 | I | High price/no theft |
|  | Loggu | 1.Cattle | 3 |  |  | 20 | 80 | I | Vet services/feeds |
|  |  | 2.Goat | 8 |  |  | 50 | 50 | I | Pasture/high price |
|  |  | 3.Sheep | 5 |  |  | 10 | 90 | I | Pasture/high price |
|  |  | 4.Poultry | 7 |  |  | 50 | 50 | I | Vet services/feed |
|  |  | 5.Pigs | 1 |  |  | 5 | 95 | D | Poor mgt./attitude |
|  | Bulenga | 1.Cattle | 7 |  |  | 1 | 99 | D | Mortality/theft |
|  |  | 2.Goat | 10 |  |  | 5 | 95 | D | Theft |
|  |  | 3.Sheep | 5 |  |  | 50 | 50 | D | Mortality/theft |
|  |  | 4.Poultry | 10 |  |  | 80 | 20 | D | High mortality |
|  |  | 5.Pigs | 3 |  |  | 10 | 90 | D | High mortality |

I = Increasing, S = Static, D = Decreasing

**Annex 14a: Community involvement and trends in the processing and marketing of major crops grown in Nadowli district in Upper West Region**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **District** | **Community** | **Crops** | **Processing** | | **Marketing** | |
| Nadowli |  |  | Involvement (1-10) | Trends and reason | Involvement (1-10) | Trends and reasons |
|  | Tabiase | 1.Sorghum | 10 | I, consumption | 10 | I, high price |
|  |  | 2.Maize | 10 | I, consumption | 10 | I, high price |
|  |  | 3.Millet | 10 | I, consumption | 2 | I, high price |
|  |  | 4.Rice | 10 | I, consumption | 10 | I, high price |
|  |  | 1.Cowpea | 10 | I, many recipes | 5 | I, source of income |
|  |  | 2.Groundnut | 1 | D, low yield | 10 | I, source of income |
|  |  | 3. Bambara groundnut | 10 | S, low production | 10 | I, source of income |
|  |  | 4.Soybean | 10 | I, diverse recipes | 10 | I, source of income |
|  |  | 5. Kersting’s groundnut | 5 | S, low production | 1 | D, low production |
|  | Goriyiri | 1.Sorghum | 5 | I, food/pito/cash | 10 | I, high price |
|  |  | 2.Maize | 10 | I, as above | 10 | I, high price |
|  |  | 3.Millet | 1 | D, low prod./yield | 2 | I, high price |
|  |  | 4.Rice | 4 | I, food/income | 10 | I, high price |
|  |  | 1.Cowpea | 7 | I, prod../ recipes | 5 | I, source of income |
|  |  | 2.Groundnut | 7 | I, prod./income | 10 | I, source of income |
|  |  | 3. Bambara groundnut | 4 | I, prod./food/cash | 10 | I, source of income |
|  |  | 4.Soybean | 3 | I, diverse recipes | 10 | I, source of income |
|  | Ombo | 1.Sorghum | 5 | I, food/cash | 5 | D, low production |
|  |  | 2.Maize | 5 | I, food/cash | 8 | I, high price |
|  |  | 3.Millet | 8 | I, food/cash | 10 | I, high price |
|  |  | 4.Rice | 5 | I, food/cash | 2 | S, low production |
|  |  | 1.Cowpea | 10 | I, diverse uses/cash | 8 | I, source of income |
|  |  | 2.Groundnut | 1 | I, source of income | 10 | I, source of income |
|  |  | 3. Bambara groundnut | 7 | I, food/cash | 5 | I, source of income |
|  |  | 4.Soybean | 5 | D, low price | 1 | D, low production |
|  | Daffiama | 1.Sorghum | 6 | I, food/pito | 2 | I, food/income |
|  |  | 2.Maize | 3 | I, food/income | 2 | I, food/income |
|  |  | 3.Millet | 2 | I, food/income | 1 | D, low production |
|  |  | 4.Rice | 3 | I, food/income | 1 | D, low production |
|  |  | 1.Cowpea | 3 | I, prod./recipes | 2 | I, food/income |
|  |  | 2.Groundnut | 3 | D, low production | 2 | D, low production |
|  |  | 3. Bambara groundnut | 1 | I, food/income | 3 | I, food/income |
|  |  | 4.Soybean | 2 | I, *dawadawa* | 1 | I, food/income |
|  | Kalsegra | 1.Sorghum | 8 | I, food/pito | 6 | I, high price/pito |
|  |  | 2.Maize | 5 | I, food | 6 | I, high price |
|  |  | 3.Millet | 2 | I, food | 2 | I, high price |
|  |  | 4.Rice | 1 | S, low production | 5 | I, high price |
|  |  | 1.Cowpea | 5 | I, recipes/food/cash | 5 | I, food/income |
|  |  | 2.Groundnut | 1 | S, low yield/skills | 6 | S, low production |
|  |  | 3. Bambara groundnut | 1 | S, low production | 5 | I, food/income |
|  |  | 4.Soybean | 1 | S, low production | 1 | S, low production |

I = Increasing, S = Static, D = Decreasing

**Annex 14b: Community involvement and trends in the processing and marketing of major crops grown in Wa East districts in Upper West Region**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **District** | **Community** | **Crops** | **Processing** | | **Marketing** | |
| Wa East |  |  | Involvement  (1-10) | Trends and reason | Involvement (1-10) | Trends and reasons |
|  | Kpalinye | 1.Sorghum | 10 | I, increased consum | 10 | I, high price |
|  |  | 2.Maize | 10 | I, increased consum | 10 | I, high price |
|  |  | 3.Millet | 5 | I, increased consum | 7 | I, high price |
|  |  | 4.Rice | 3 | I, increased consum | 10 | I, high price |
|  |  | 1.Cowpea | 8 | D, low price | 5 | I, source of income |
|  |  | 2.Groundnut | 1 | D, low yield/skill | 10 | I, source of income |
|  |  | 3. Bambara groundnut | 1 | S, low production | 10 | I, source of income |
|  |  | 4.Soybean | 1 | D, low skill | 10 | I, source of income |
|  | Naaha | 1.Sorghum | 4 | I, consumption | 10 | I, food/income |
|  |  | 2.Maize | 5 | I, consumption | 6 | I, high market price |
|  |  | 3.Millet | 5 | D, low production | 9 | I, high market price |
|  |  | 4.Rice | 5 | I, consumption | 7 | I, high market price |
|  |  | 1.Cowpea | 10 | I, market available | 7 | I, food/income |
|  |  | 2.Groundnut | 1 | D, low yield/skills | 7 | I, source of income |
|  |  | 3. Bambara groundnut | 2 | D, low production | 9 | I, food/income |
|  |  | 4.Soybean | 5 | D, lack skills | 8 | D, low production |
|  | Zinnyea | 1.Sorghum | 5 | I, food/pito | 1 |  |
|  |  | 2.Maize | 1 | D | 1 |  |
|  |  | 3.Millet | 1 | D | 1 |  |
|  |  | 4.Rice | 1 | D | 1 |  |
|  |  | 1.Cowpea | 6 | I, consumption | 2 | D, no funds |
|  |  | 2.Groundnut | 1 | D, no skills | 1 |  |
|  |  | 3.Soybean | 1 | D, no skills | 1 |  |
|  | Loggu | 1.Sorghum | 7 | I, food/pito | Na | I, high market price |
|  |  | 2.Maize | 5 | I,food/income | Na | I, high market price |
|  |  | 3.Millet | 4 | I, consumption | Na | I, high market price |
|  |  | 4.Rice | 8 | I, consumption | Na | I, high market price |
|  |  | 1.Cowpea | 5 | I, recipes/income | Na | I, source of income |
|  |  | 2.Groundnut | 4 | I, food/income | Na | I, source of income |
|  |  | 3. Bambara groundnut | 5 | I, food/income | Na | I, source of income |
|  |  | 4.Soybean | 2 | I, food/*dawadawa* | Na | I, source of income |

I = Increasing, S = Static, D = Decreasing. Na = not available

**Annex 15: Community involvement and trends in processing and marketing of livestock in Nadowli and Wa East districts in Upper West Region**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **District** | **Community** | **Livestock** | **Processing** | | **Marketing** | |
|  |  |  | **Involvement (1-10)** | **Trends and reason** | **Involvement (1-10)** | **Trends and reasons** |
| Nadowli | Tabiase | 1.Goat | 8 | I, consumption | 10 | I, high demand/income |
|  |  | 2.Cattle | 6 | I, consumption | 10 | I, high demand/traction |
|  |  | 3.Sheep | 8 | I, consumption | 10 | I, high demand/income |
|  |  | 4.Poultry | 1 | I, consumption | 10 | I, high demand/income |
|  |  | 5.Pigs | 5 | I, consumption | 5 | I, income/high demand |
|  |  | 6.Rabbit | 1 | I, consumption | 1 | S, low production |
|  | Goriyiri | 1.Goat | 1 | D, theft/disease | 10 | I, high demand/income |
|  |  | 2.Sheep | 1 | D, theft/diseases | 10 | I, high demand/income |
|  |  | 3.Poultry | 1 | D, theft/diseases | 10 | I, high demand/income |
|  |  | 4.Pigs | 10 | I, consumption | 5 | I, high demand/income |
|  |  | 5.Donkey | 1 | D, theft/diseases | - | I, high demand/income |
|  |  | 6.Cattle | - | - | 10 | I, high demand/income |
|  |  | 7.Rabbit | - | - | 1 | S, low production |
|  | Ombo | I. Goat | 1 | D, few animals | 5 | I, source of income |
|  |  | 2.Cattle | 1 | D, few animals | 10 | I, high demand/income |
|  |  | 3.Sheep | 1 | D, few animals | 8 | I, high demand/income |
|  |  | 4.Poultry | 1 | D, few animals | 3 | I, high demand/income |
|  |  | 5.Pigs | 3 | I, consumption | 6 | I, high demand/income |
|  | Daffiama | 1.Goat | 3 | D, few animals | 1 | D, low prod./theft |
|  |  | 2.Cattle | 1 | I, increased use | 1 | D, low prod./theft |
|  |  | 3.Sheep | 3 | D, few animals | 1 | D, low prod/theft |
|  |  | 4.Poultry | 1 | D, few animals | 2 | I, high demand/income |
|  |  | 5.Pigs | 6 | I, increased use | 2 | I, high demand/income |
|  |  | 6.Rabbit | 1 | D, low patronage | 1 | D, low production |
|  | Kalsegra | 1.Goat | 1 | S, few animals | 1 | D, low number |
|  |  | 2.Sheep | 1 | S, few animals | 1 | D, low number |
|  |  | 3.Poultry | 1 | S, few animals | 1 | D, low number |
|  |  | 4.Pigs | 3 | I, consumption | 1 | I, increased demand |
| Wa East | Kpalinye | 1.Goat | 1 | I, consumption | 10 | I, demand/income |
|  |  | 2.Cattle | 1 | I, consumption | 10 | I, demand/income |
|  |  | 3.Sheep | 1 | I, consumption | 10 | I, demand/income |
|  |  | 4.Poultry | 1 | I, consumption | 10 | I, demand/income |
|  |  | 5.Pigs | 3 | I, consumption | 5 | I, demand/income |
|  | Naaha | 1.Goat | 7 | S, low number/theft | 7 | I, demand/income |
|  |  | 2.Cattle | 1 | D, few/death | 6 | I, demand/traction |
|  |  | 3.Sheep | 7 | S, low number/theft | 5 | I, demand/income |
|  |  | 4.Poultry | 9 | S, low number/death | 7 | I, demand/income |
|  | Zinnye | 1.Cattle | 1 | D | 10 | I, high demand |
|  |  | 2.Goat | 1 | D | 1 | D |
|  |  | 3.Sheep | 1 | D | 1 | D |
|  |  | 4.Poultry | 1 | D | 1 | D |
|  |  | 5.Pigs | 3 | 1, high demand | 3 | I, demand/good price/prolific |
|  | Loggu | 1.Cattle | 1 | I, consumption | Na | I, demand/income |
|  |  | 2.Goat | 5 | I, consumption | Na | I, demand/income |
|  |  | 3.Sheep | 5 | I, consumption | Na | I, demand/income |
|  |  | 4.Poultry | 2 | I, consumption | Na | I, demand/income |
|  |  | 5.Pigs | 2 | D, attitude to pork | Na | D, attitude to pork |

I = Increasing, S = Static, D = Decreasing, Na = not available

**Annex 16a: Crop and livestock census and ranking in Nadowli district in Upper West Region**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **District** | **Community** | **Tabiase** | | | | | **Goriyiri** | | | **Ombo** | | |
| **Nadowli** |  |  |  | |  | | **Ranking** | | | |  |  |
|  | **Cereals** | **All** | **Men** | | **Women** | | **Food** | **Cash** |  | **Food** | **Cash** |  |
|  | 1.Sorghum | 2nd | 2nd | | 2nd | | 2nd | 2nd |  | 3rd | 3rd |  |
|  | 2.Maize | 1st | 1st | | 1st | | 1st | 1st |  | 1st | 1st |  |
|  | 3.Millet | 4th | 4th | | 4th | | 4th | 4th |  | 2nd | 2nd |  |
|  | 4.Rice | 3rd | 3rd | | 3rd | | 3rd | 3rd |  | 4th | 4th |  |
|  | **Legumes** |  |  | |  | |  |  |  |  |  |  |
|  | 1.Cowpea | 1st | 1st | | 2nd | | 1st | 1st |  | 1st | 1st |  |
|  | 2.Groundnut | 2nd | 2nd | | 1st | | 2nd | 2nd |  | 2nd | 2nd |  |
|  | 3.Bambara groundnut | 3rd | 3rd | | 3rd | | 4th | 3rd |  | 3rd | 3rd |  |
|  | 4.Soybean | 4th | 4th | | 4th | | 3rd | 4th |  | 4th | 4th |  |
|  | 5. Kersting’s groundnut | 5th | 5th | | - | | - | - |  | - | - |  |
|  | **Livestock** |  |  | |  | |  |  |  |  |  |  |
|  | 1.Goat | 2nd | 2nd | | 3rd | | 2nd | 2nd |  | 3rd | 3rd |  |
|  | 2.Cattle | 1st | 1st | | - | | - | - |  | 1st | 1st |  |
|  | 3.Sheep | 3rd | 3rd | | 2nd | | 3rd | 3rd |  | 4th | 4th |  |
|  | 4.Poultry | 4th | 4th | | 1st | | 1st | 4th |  | 5th | 4th |  |
|  | 5.Pigs | 5th | 5th | | - | | 4th | 4th |  | 2nd | 2nd |  |
|  | 6.Rabbit | 6th | 6th | | 4th | | - | - |  | - | - |  |
|  | 7.Donkey | - | - | | - | | 5th | 6th |  | - | - |  |
|  | **Community** | **Daffiama** | | | | | **Kalsegra** | | |  | | |
|  | **Cereals** | **Food** | | **Cash** | |  | **Food** | **Cash** |  |  |  |  |
|  | 1.Sorghum | 2nd | | 2nd | |  | 2nd | 2nd |  |  |  |  |
|  | 2.Maize | 1st | | 1st | |  | 1st | 1st |  |  |  |  |
|  | 3.Millet | 4th | | 4th | |  | 4th | 4th |  |  |  |  |
|  | 4.Rice | 3rd | | 3rd | |  | 3rd | 3rd |  |  |  |  |
|  | **Legumes** |  | |  | |  |  |  |  |  |  |  |
|  | 1.Cowpea | 1st | | 1st | |  | 1st | 1st |  |  |  |  |
|  | 2.Groundnut | 3rd | | 3rd | |  | 2nd | 2nd |  |  |  |  |
|  | 3.Bambara groundnut | 2nd | | 2nd | |  | 3rd | 3rd |  |  |  |  |
|  | 4.Soybean | 4th | | 4th | |  | 4th | 4th |  |  |  |  |
|  | 5. Kersting’s groundnut | - | | - | |  | 5th | 5th |  |  |  |  |
|  | **Livestock** |  | |  | |  |  |  |  |  |  |  |
|  | 1.Goat | 3rd | | 3rd | |  | 2nd | 2nd |  |  |  |  |
|  | 2.Cattle | 5th | | 5th | |  | 1st | 1st |  |  |  |  |
|  | 3.Sheep | 4th | | 4th | |  | 3rd | 3rd |  |  |  |  |
|  | 4.Poultry | 2nd | | 2nd | |  | 4th | 4th |  |  |  |  |
|  | 5.Pigs | 1st | | 1st | |  | 5th | 5th |  |  |  |  |
|  | 6.Rabbit | 6th | | 6th | |  | 6th | 6th |  |  |  |  |

**Annex 16b: Crop and livestock census and ranking in Wa East district in Upper West Region**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **District** | **Community** | **Kpalinye** | | | **Naaha** | | | **Zinnye** | | |
| **Wa East** |  |  |  |  | **Ranking** | | | |  |  |
|  | **Cereals** | **Food** | **Cash** |  | **Food** | **Cash** |  | **Food** | **Cash** |  |
|  | 1.Sorghum | 2nd | 2nd |  | 5th | 2nd |  | 2nd | 2nd |  |
|  | 2.Maize | 1st | 1st |  | 1st | 1st |  | 1st | 1st |  |
|  | 3.Millet | 4th | 4th |  | 4th | 4th |  | 3rd | 3rd |  |
|  | 4.Rice | 3rd | 3rd |  | 3rd | 3rd |  | 4th | 4th |  |
|  | **Legumes** |  |  |  |  |  |  |  |  |  |
|  | 1.Cowpea | 3rd | 3rd |  | 3rd | 3rd |  | 3rd | 3rd |  |
|  | 2.Groundnut | 1st | 1st |  | 1st | 1st |  | 1st | 1st |  |
|  | 3.Bambara groundnut | 4th | 4th |  | 4th | 4th |  | - | - |  |
|  | 4.Soybean | 2nd | 2nd |  | 2nd | 2nd |  | 2nd | 2nd |  |
|  | **Livestock** |  |  |  |  |  |  |  |  |  |
|  | 1.Goat | 2nd | 2nd |  | 2nd | 2nd |  | 3rd | 3rd |  |
|  | 2.Cattle | 4th | 1st |  | 4th | 1st |  | 4th | 4th |  |
|  | 3.Sheep | 1st | 3rd |  | 1st | 3rd |  | 5th | 5th |  |
|  | 4.Poultry | 3rd | 4th |  | 3rd | 4th |  | 2nd | 2nd |  |
|  | 5.Pigs | 5th | 5th |  | - | - |  | 1st | 1st |  |
|  | **Community** | **Loggu** | | | **Bulenga** | | |  | | |
|  | **Cereals** | **Food** | **Cash** |  | **Food** |  |  |  |  |  |
|  | 1.Sorghum | 4th | 4th |  | 2nd |  |  |  |  |  |
|  | 2.Maize | 1st | 1st |  | 1st |  |  |  |  |  |
|  | 3.Millet | 3rd | 3rd |  | 4th |  |  |  |  |  |
|  | 4.Rice | 2nd | 2nd |  | 3rd |  |  |  |  |  |
|  | **Legumes** |  |  |  |  |  |  |  |  |  |
|  | 1.Cowpea | 2nd | 2nd |  | 2nd |  |  |  |  |  |
|  | 2.Groundnut | 1st | 1st |  | 1st |  |  |  |  |  |
|  | 3.Bambara groundnut | 4th | 4th |  | 4th |  |  |  |  |  |
|  | 4.Soybean | 3rd | 3rd |  | 3rd |  |  |  |  |  |
|  | **Livestock** |  |  |  |  |  |  |  |  |  |
|  | 1.Goat | 1st | 1st |  | 1st |  |  |  |  |  |
|  | 2.Cattle | 4th | 4th |  | 5th |  |  |  |  |  |
|  | 3.Sheep | 3rd | 3rd |  | 3rd |  |  |  |  |  |
|  | 4.Poultry | 2nd | 2nd |  | 1st |  |  |  |  |  |
|  | 5.Pigs | 5th | 5th |  | 4th |  |  |  |  |  |

**Annex 17: Problem census and prioritization and farmer coping strategies in Upper West Region**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **District** | **Problem** | **Rank** | | | **Coping strategy/advantage**  **Disadvantages/%involved** | **Trend**  **(I/D/S)** |
| Nadowli | **Crop Production** |  | | |  |  |
|  | 1.Erratic rainfall | 1st 4th 1st 4th | | | 1.1.Early varieties/ higher yields/costly/50%  1.2.Early planting/higher yields/ high labour/100% | I, awareness  I, awareness |
|  | 2.High cost of fertilizer | 2nd 4th | | |  |  |
|  | 3. *Striga* infestation | 3rd 6th 5th 6th 5th | | |  |  |
|  | 4. Lack land prep. Equipt. | 4th 3rd 2nd 3rd | | | 4.1.Animal traction/timely and better land prep./high cost and unavailability/70% | D, children go to school/no herders |
|  | 5. Inadequate credit | 1st | | |  |  |
|  | 6. Lack of improved seed | 2nd 2nd 3rd 3rd | | | 6.1,Use local varieties/cheap and time saving/low yield and late maturing/100% | D, new varieties coming up |
|  | 7.Declining soil fertility | 5th 2nd 5th 1st | | | 7.1.Fertilizer application/high yields /costly/60% | D, non availability |
|  | 8.Pests and diseases | 1st 2nd | | | 8.1.Insecticides/high yield/high cost, unsafe/100% | I, effective |
|  | 9.Weed infestation |  | | | 9.1.Chemical weed control/effective/unsafe/ 20% | I, better control |
|  | 10.Inadequate storage | 4th | | | 10.1.PICS cowpea storage/safe/high cost /10% | I,effective/ quality |
|  | **Processing** |  |  |  |  |  |
|  | 1.Lack of machinery | 4th |  |  |  |  |
|  | 2.Lack of skills |  |  |  |  |  |
|  | 3.Lack of storage facility | 5th |  |  |  |  |
|  | **Marketing** |  |  |  |  |  |
|  | 1.Lack of organized mkt. | 2nd |  |  |  |  |
|  | 2.Low produce prices | 1st |  |  |  |  |
|  | 3.Lack of transport | 3rd |  |  |  |  |
|  | **Livestock (Daffiama)** |  |  |  |  |  |
|  | 1.High mortality |  |  |  |  |  |
|  | 2.Lack of improved breed |  |  |  |  |  |
|  | 3.Theft of animals |  |  |  |  |  |
|  | 4. Inadequate housing |  |  |  |  |  |
|  | 5. Inadequate water |  |  |  |  |  |
|  | 6. Inadequate vet |  |  |  |  |  |
| Wa East | **Crop Production** |  |  |  |  |  |
|  | 1.Lack of land prep.equip | 1st 2nd 2nd | | | 1.1Animal traction/as above/90% | I, efficient |
|  | 2.High cost of fertilizer | 2nd 3rd | | |  |  |
|  | 3.*Striga* infestation | 3rd 1st | | | 3.1Farmer /farmer sharing/reduce *Striga*/slow/90% | D, not effective |
|  | 4.Lack of improved seed | 4th 2nd | | |  |  |
|  | 5.Pests diseases/weeds | 5th 5th 2nd | | | 5.1 PICS cowpea storage/as above/10% | I, as above |
|  | 6.Low soil fertility | 1st | | |  |  |
|  | 7.Inadequate storage | 6th | | |  |  |
|  | **Livestock** |  | | |  |  |
|  | 1.Theft | 1st | | |  |  |
|  | 2.Diseases | 3rd | | |  |  |
|  | 3.Inadequate water | 2nd | | |  |  |